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ISSUE 62 ■ SEPTEMBER 1994 ■ £3.50

ST FORMAT

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ISHAR 3

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7 BRILLIANT PROGRAMS!

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ALL PROGRAMS STE AND TOS 2.06 COMPATIBLE

COVER DISK 62

ST FORMAT

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■ Tweak files with this power utility

SYNTHS
■ 10 super Korg samples for *Quartet*

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ST FORMAT CON

Custom computing

Fancy 24-bit graphics? Like a faster processor? Want a bigger drive? Need more RAM? Customising your ST and upgrading its performance is on page 17

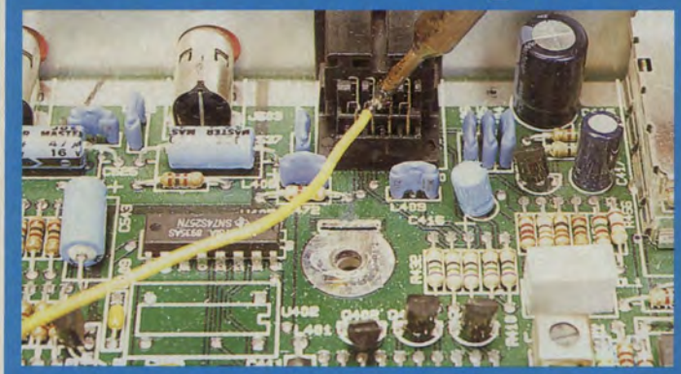
Nova card

16/32's long-awaited 24-bit graphics card is here! View the results on page 50

A classified bargain

There are thousands of ST bargains just waiting to be snapped up – in your local paper! Explore the classified bargain basement with our exhaustive second-hand buyers' guide on page 34

DIY video port



Give your STE or STFM a video port and cut out those cable-swapping nightmares with this smart 'how to' guide on page 78

COVER DISK 62

7 SMART PROGRAMS ON DISK

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ST FORMAT
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COVER DISK

MONTHLY MENU

Medieval Chess
Chess with a bizarre difference – a battle to the death every square.
Uncompressed size: 685K Page: 6

Fastcopy 3
Create extended format disks with the best PD disk formatter around.
Size: 24K Page: 7

Albion
Tweak and rename your files and disks with this powerful utility.
Size: 90K Page: 8

Synth Sounds
10 Super Korg synth samples for you to use with Quartet.
Uncompressed size: 82K Page: 8

The Ultimate Converter
TUC is probably the best word processor file converter for the ST ever. Really.
Size: 66K Page 9

Easy For You To Say
A *Digit* song created especially for *ST FORMAT*, called *Easy For You To Say*.
Uncompressed size: 109K Page: 9

Make 1MByte
Make your 2MByte or 4MByte ST think it only has 1MByte of RAM. Sounds daft, but you'd be surprised how useful this little program could turn out to be.
Size: 2K Page: 8

Cover Disk Backup
Ensure Cover Disk integrity with our special back-up program.
Size: 13K Page: 9

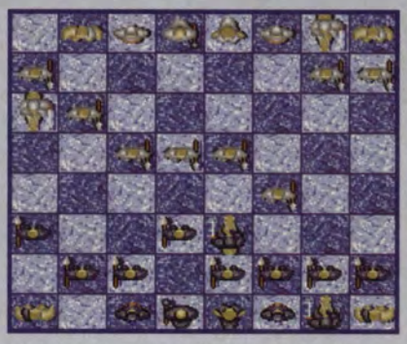
MEDIEVAL CHESS

BY: JV ENTERPRISES
RESOLUTION: LOW RESOLUTION
MACHINE: ALL STS, JOYSTICK REQUIRED
MINIMUM MEMORY: 1MBYTE
FOLDERS: CHESS, A, B, C
FILES: CHESS1.LZH, CHESS2.LZH, MUSIC.DAT
UNCOMPRESSED SIZE: 685K
GET STARTED WITH: README.TXT, SEE BELOW

***Medieval Chess* is a great** Shareware game that adds a new twist to the game of chess: instead of taking pieces in the normal way you actually have to fight for the square you land on, and there's no guarantee that you'll win!

Before you do anything else make a back-up copy of your Cover Disk and extract *Medieval Chess* to a blank disk using the *ST FORMAT* menu program – see the boxout on the next page for full instructions for using the menu program. Once you have created your *Medieval Chess* disk click on MEDIEVAL.PRG to start the game.

When the game has loaded a scroll appears enabling you to choose the number of players, the colour of your opponent and the difficulty level of your ST if you elect to play the computer. If you make a mistake you can go back and select again. Other choices are to begin the game or quit.



■ Getting off to a good start is vital in any game of chess, whether with or without a hand-to-hand combat section.

Making a move

White always makes the first move, as in traditional chess. With the cursor appearing over the king, use the joystick to move the cursor over the piece you want to move and press the <Fire> button. To deselect the piece press <Fire> again. You can now use the joystick to move the piece to the destination square. If you try an illegal move, the piece moves back to its starting square.

When you land on an occupied square the game switches to Fight mode. A sword on the left of the screen shows the strength of the black player while the sword on the right displays the white's strength. If the handle of your sword turns red it means you are recharging and cannot fire.

Move around using the joystick, and attack your opponent using the <Fire> button. Solid areas can act as a shield to block projectile weapons but these blocks disintegrate after several hits.

■ The battle arena, in which you fight for control of a square on the chessboard. The white is just about to get zapped by the black bishop.

Rules and regulations

The rules are simple: defeat the enemy king in battle using the traditional moves used in chess, augmented by a hand-to-hand combat section. When you are in an attack screen the piece that initiates the move has a strength advantage, except when a king is attacked. Each piece has different strengths, weapons, recharge times, speed and damage capabilities, and each damaged piece gradually heals as the game progresses.

Once the final battle is fought, the winning king is awarded a shrubbery by the Knights that say "Ni" (who else?) and goes on to the quarter finals.

A FEW LITTLE RULE CHANGES

Medieval Chess is based on the normal rules of traditional chess, except for are a few subtle but important differences.

There is no check or checkmate, instead you have to defeat your opponent's king in combat. When a pawn reaches the far side of the board it is replaced by a piece that has previously been taken, or if no other piece has been taken the pawn is replaced as soon as you lose a piece. Finally, the en-passant rule has been discarded. When you land on an occupied square you don't automatically take the piece. Instead, the two pieces fight it out in combat.

All other normal chess rules apply, whatever they are...

■ "It's *Battle Chess* isn't it?" A similar concept perhaps, but *Medieval Chess* is much better.

USING THE *STF* MENU PROGRAM

Now we've made it really easy for you to copy and extract programs from our Cover Disk and Wonderdisk. Just follow the ten steps below and make sure you have some blank formatted disks ready.

We've assumed a double sided, single drive system in medium resolution for these instructions. If your ST is in low resolution then switch to medium resolution using the Preferences command in the Options menu at the Desktop.

You can use the menu program to copy files to an external disk drive or a hard drive. Select the destination drive using the file selector in the usual way.

1 Put the Cover Disk in the drive and double-click on the STF™.PRG icon (or the MENU.PRG icon on the Wonderdisk). Wait for the *ST FORMAT* logo to appear and press any key.

2 After a short time a menu screen appears with some instructions at the top of the screen and a list of programs in the centre. Check the text at the top of the screen for any special instructions.

3 Use the up and down arrow keys on the cursor keypad to select the program you want to copy or extract and press the <Return> key.

4 After a few seconds a message appears asking you to select the destination disk for the program. Press any key and wait for the file selector to appear.

5 When the file selector appears select Drive B as the destination, even if you only have a single disk drive. An alert box appears asking you to put Disk B into Drive A – do so and then click on OK. When the alert box vanishes click on the OK button in the file selector.

6 The alert box now asks you to put Disk A into Drive A. Do so and click on the OK button. After the box vanishes press any key and the menu program loads the program you have selected into memory. An alert box tells you to put Disk B in Drive A. Do so and click on OK.

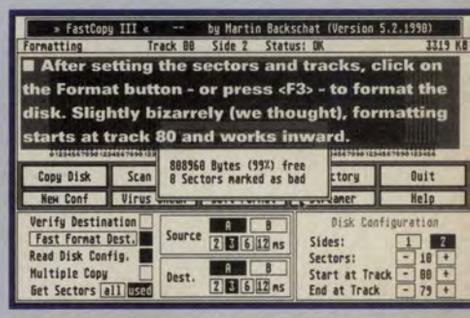
7 The program is copied to your blank disk and automatically makes any folders it may need. If the file is compressed then the menu program automatically unpacks it, then deletes the compressed file.

8 Some compressed files may be contained in more than one segment. Follow the on-screen instructions and keep swapping disks when requested.

9 You finally come to a message telling you that the program has been transferred. Press any key to return to the main Cover Disk menu.

10 When you have returned to the Cover Disk menu you can select another program to decompress or press the <Esc> key to return to the Desktop.

After your disk is formatted you can give your disk a name: "Hi, I'm Bernard and I can store 809K of data." Or whatever.



After setting the sectors and tracks, click on the Format button - or press <F3> - to format the disk. Slightly bizarrely (we thought), formatting starts at track 80 and works inward.

FASTCOPY 3

BY: MARTIN BACKSCHAT
RESOLUTION: MEDIUM OR HIGH RESOLUTION
MACHINE: ALL STS, HARD DRIVE INSTALLABLE
MINIMUM MEMORY: 512K
FOLDER: FASTCOPY

FILES: FCOPY_3.PRG
SIZE: 24K
GET STARTED WITH: SEE BELOW

Sometimes the programs we squeeze on the Cover Disk are so big you have to format disks in a special way to cram all the information on them – called extended formatting. You can't create extended formats using your ST's built-in Format command in the File menu; it can only create 80 track, 9 sector formats. To get more data on to a disk you can add extra tracks or extra sectors, but you need to use a separate disk formatter. We use an 80 track, 10 sector format for our disks because we find this to be the most efficient and reliable size.

Fastcopy 3 is probably the best PD disk formatter you can get. It's fast, efficient and enables you to make back-up copies of unprotected disks. Almost every function is activated from a mouse-click on the screen, making it really easy to use. So, if you haven't got enough room to cram all of *Klingon War* on to a disk, use *Fastcopy 3* to create an extended format disk.

FINDING YOUR WAY AROUND FASTCOPY

Fastcopy 3 has so many knobs, buttons and boxes that you can easily get baffled over which button does what. Here's a quick guide to each of the controls and its keyboard short cut.

1 Status Bar: Indicates the amount of free system RAM and the status of the currently selected option.

2 Bar Graph: Displays the current state of the scan, copy or format.

3 Copy Disk: Select this button to copy a disk. You can also press <F1> or <Return> to activate the Copy function.

4 Scan Disk: Checks through a disk, looking for physical and data errors. Key <F2>.

5 Format Disk: Select this button to, er, format a disk. Press key <F3>.

6 Directory: Read the directory of Drive A or Drive B. Press key <F4>.

7 Quit: Exit *Fastcopy* and return to the Desktop. Key <F5>.

8 New Conf: Reads a disk format and copies it to a blank disk. Press key <F6>.

9 Virus Check: Checks a disk for a virus. Slightly out of date so use *UVK*. Press key <F7>.

10 Soft Format: Writes new directories and FATs to a formatted disk to erase it. Press key <F8>.

11 Streamer: Hard drive to floppy disk back-up utility. Press key <F9>.

12 Help: Three pages of help and info. Press key <F10>.

13 Verify Destination: Makes sure that data on disk matches data in RAM. Key <V>.

14 Source: Selects Drive A or B as source disk and sets the drive step rate.

15 Disk Configuration: Selects the number of sides, sectors and tracks.

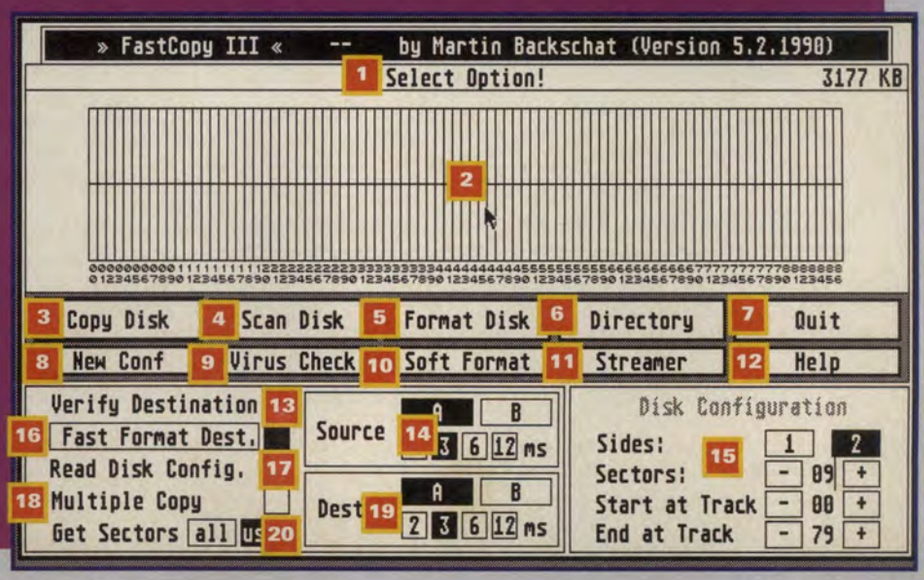
16 Fast Format Dest: Selects between normal and fast loading disks. Key <F>.

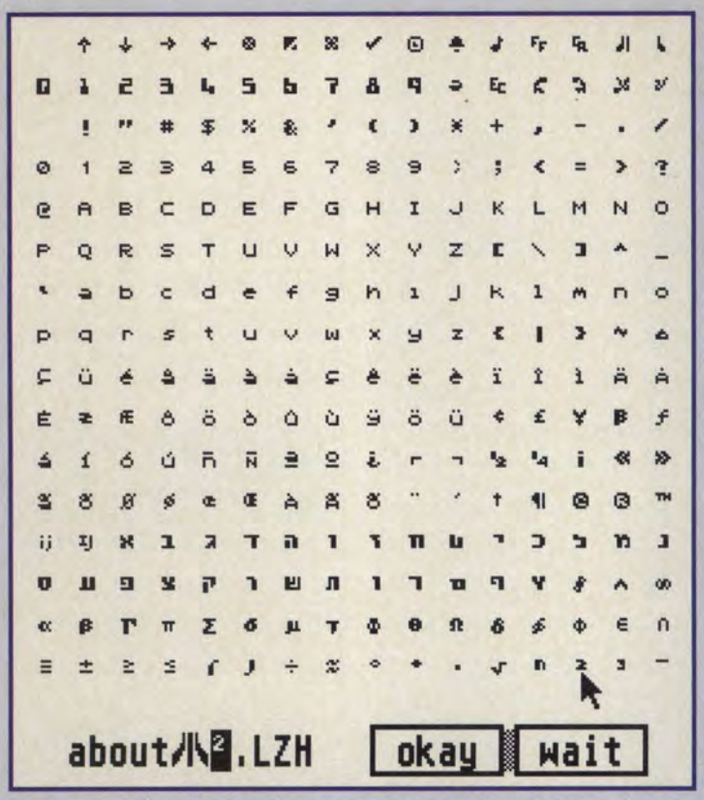
17 Read Disk Config: Reads disk configuration from source disk. Key <R>.

18 Multiple Copy: Makes more than one backup of a disk. Key <M>.

19 Dest: Selects Drive A or B as destination disk and sets the drive step rate.

20 Get Sectors: Reads an entire disk or just the used sectors. Press key <G>.





■ If you want to use some of the weirder characters in a file name, click on the Chars button. This takes you to a screen where you can choose characters from a menu to replace highlighted letters in the file name. A word of warning, TOS 2.06 doesn't like file names with lower-case letters and never use a question mark - ? - in a file name with any version of TOS.

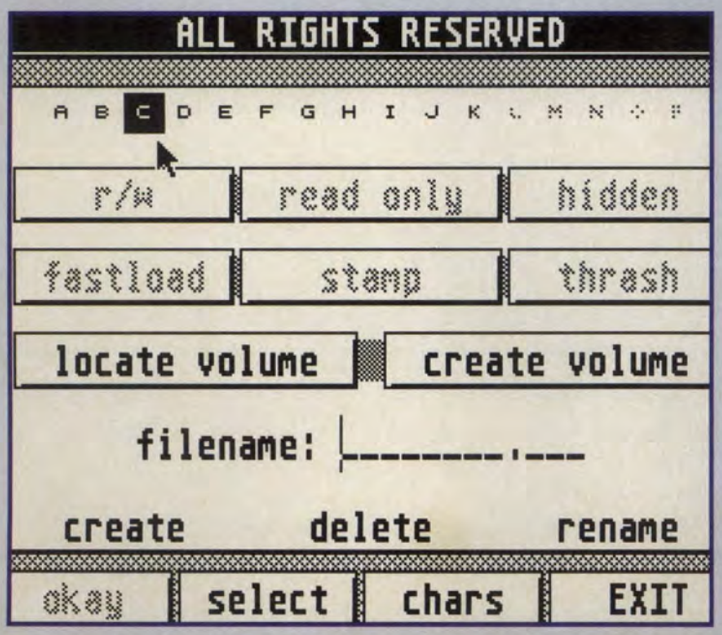
ALBION

BY: CARL J HAFNER
RESOLUTION: MEDIUM OR HIGH RESOLUTIONS
MACHINE: ALL STS, HARD DRIVE INSTALLABLE
MINIMUM MEMORY: 512K
FOLDER: ALBION-X
FILES: ALBION.PRG, ALBION.TXT, NEWTERMS.TXT, OTHERTTL.TXT
SIZE: 90K
GET STARTED WITH: ALBION.TXT, SEE BELOW

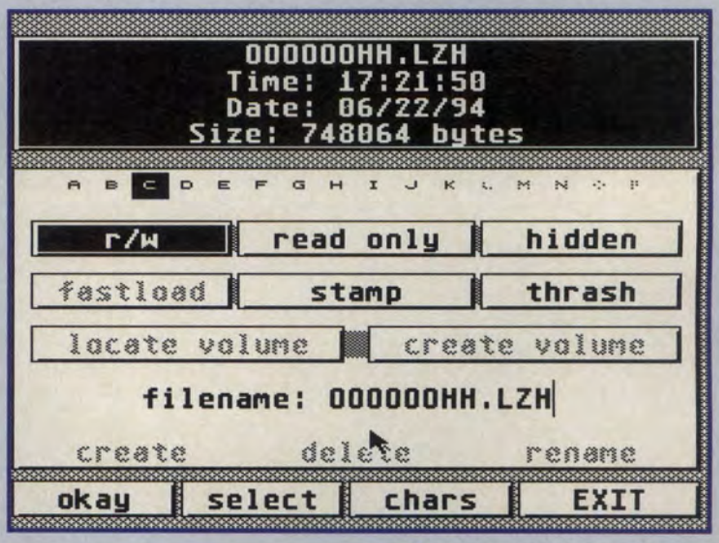
Using *Albion* you can alter file names, stamp them with a new date, write-protect them, hide them, alter the fastload bit and even thrash the odd file. Er, that means to delete it so it becomes unrecoverable, gone forever, beyond all hope of rescue.

Albion's a nifty little program with loads of nips and tucks to surprise you when you use it. When you load the program the first thing you have to do is select a drive letter from the line at the top of the function window. Now you must select a file to work on. To do this, click on the Select button and use the file selector to choose the file to be modified.

Apart from changing file names and attributes you can use *Albion* to give each of your floppy disks a unique name using the full Atari character set. Use the Locate Volume to find the disk name, edit it in the Filename line and write it to the disk using the Create Volume button. Simple (says Boris).



■ Select the drive you are going to work on, then click on the Select button to choose a file to modify. When you have picked a file its name is displayed in the file name line.



■ Now you can choose an Option button to modify the file or alter its name. Once you have selected an option you can simply select the OK button to modify the file.

SYNTH SOUNDS

BY: CYBERDYNE SOFTWARE SYSTEMS
RESOLUTION: MEDIUM OR HIGH RESOLUTION
MACHINE: ALL STS, HARD DRIVE INSTALLABLE
MINIMUM MEMORY: 512K
FOLDER: SYNTHS
FILES: KORG.LZH
UNCOMPRESSED SIZE: 82K
GET STARTED WITH: SEE BELOW

Ten more super samples for you to use with *Quartet* – this time all sounds sampled from a Korg synth. All you need to do is load them into the *Voices* program that came with *Quartet* on Cover Disk 5, then you can create your own unique brand of techno rock. If you're not sure how to use the *Voices* program, see the Masterclass in *ST FORMAT* 60 (turn to page 90 if you missed it).

To unpack the file, select the Synths option using the Cover Disk menu program, select your destination disk and sit back while the file is copied and unpacked for you. Easy peasy. Even Yeltsin could do it.

MAKE 1MBYTE

BY: RANDY MEARS
RESOLUTION: ALL RESOLUTIONS
MACHINE: ALL STS
MINIMUM MEMORY: 2MBYTES
FOLDER: MAKE_1MB
FILES: MAKE_1MB.TOS
SIZE: 2K
GET STARTED WITH: SEE BELOW

Okay. Some games don't like running on an ST with more than 1MByte of memory installed. *Railroad Tycoon,* for example, crashes whenever it detects the extra memory. The game checks to see if there is 1MByte of RAM installed, because it needs that amount to run, but if it detects a figure that doesn't agree exactly with 1MByte it refuses to run, even if you have more.

That's where *Make 1MByte* comes in. It disables the extra RAM so that your ST thinks it only has 1MByte of RAM, which enables picky software to run. To set up the program double-click on MAKE_1MB.TOS, press <Y> at the command and reset your ST with the game disk in the drive. The game should run and load normally. To remove *Make 1MByte* from memory switch off your ST for at least 30 seconds.

COVER DISK BACKUP

BY: BRIAN TILLEY
RESOLUTION: ALL RESOLUTIONS
MACHINE: ALL STS, HARD DRIVE INSTALLABLE
MINIMUM MEMORY: 512K
FOLDER: CD_BACK
FILES: CD_BACK.TOS
SIZE: 13K
GET STARTED WITH: SEE BELOW

It's imperative that you protect your Cover Disk data. Stop what you are doing right now and use the Cover Disk *Backup* program to make working copies of your Cover Disk. All you have to do is double-click on CD_BACK.TOS and follow the on-screen instructions to make a secure backup of your disk – in fact, you'd better make it two copies just to be on the safe side.

While you're at it make backups of your Wonderdisk too. What do you mean you haven't got a Wonderdisk? All you have to do is subscribe to get twice as much *ST FORMAT* Cover Disk software. Turn to page 68 now.

You can even use our Cover Disk *Backup* program to make copies of all your favourite PD and Shareware software – two copies are always better than one.

THE ULTIMATE CONVERTER

BY: KEVIN MILLICAN
RESOLUTION: MEDIUM AND HIGH RESOLUTION
MACHINE: ALL STS, HARD DRIVE INSTALLABLE
MINIMUM MEMORY: 512K
FOLDER: TUC102
FILES: TUC.TTP, TUC.TXT, SAMPLES.TXT, 18 OTHER TUC AND SAMPLE FILES
SIZE: 66K
GET STARTED WITH: TUC.TXT, SAMPLES.TXT, SEE BELOW

***TUC* is probably the best file** conversion program for the ST, enabling you to convert PC word processor files in that have been created in *WordStar, WordPerfect* and RTF (Rich Text Format) to formats useable on the ST. It also converts *1st Word, Protext 4.3* and *Write On* to RTF and *WordStar* formats, enabling you to move text both ways.

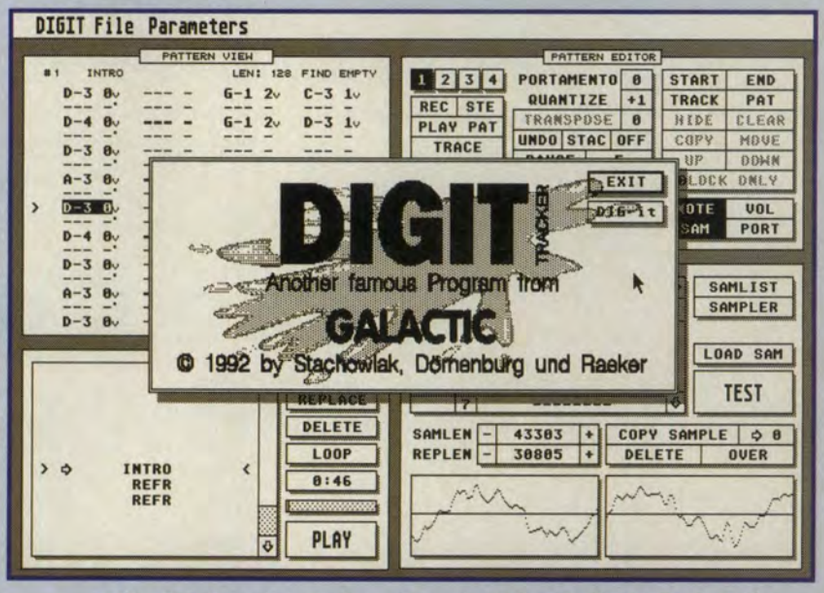
Because *TUC* is a TTP program, you have to enter command parameters in the command line after you run the program. Full instructions for use are included in the TUC.TXT, and don't forget to send off the Shareware fee if you find the program useful (otherwise Boris might cry).

EASY FOR YOU TO SAY

BY: AUTOMATED SAUSAGE SOFTWARE
RESOLUTION: HIGH RESOLUTION
MACHINE: ALL STS, NEEDS DIGIT 1.1 DEMO
MINIMUM MEMORY: 1MBYTE
FOLDER: DIGIT
FILES: EZ4U2SAY.LZH, EZ4U2SAY.TXT
UNCOMPRESSED SIZE: 109K
GET STARTED WITH: EZ4U2SAY.TXT, SEE BELOW

Our slightly mad MIDI and music maestro, Andy Curtis, has come up with a stunning little song for you to try out using the *Digit* demo we gave you last month. All you have to do is use the *ST FORMAT* menu program in the usual way to unpack the demo song to the destination disk of your choice. After the song file has finished copying and unpacking you can load up the *Digit* demo and load the EZ4U2SAY.SNG into it and select the play option.

Then sit back, relax and let the weird and wonderful music flow around you – and wonder to yourself about Andy Curtis' strange and unhealthy preoccupation with sausages.



■ **Hey, boogie on down to the cool sounds of *Easy For You To Say* by Andy Curtis and the Automated Sausage Software. Groovy.**

TEN TIPS FOR COVER DISK SATISFACTION

1 Write-protect your Cover Disk by sliding the black tab so you can see through the hole; this prevents you from accidentally erasing data.

2 Make a back-up copy using the Cover Disk *Backup* program (see the instructions above).

3 Always read the instructions for the program you are using, found either on the Cover Disk pages or in any document file on the disk.

4 Never run software directly from the Cover Disk except the *Backup* program, and always use your back-up disk.

5 Never, ever try to decompress self-extracting TOS files on the Cover Disk. Always copy them to a blank disk.

6 If you have any general problems with your ST, consult your manual. If you are still stuck then write to ST Answers, 30 Monmouth Street, Bath, BA1 2BW.

7 If you can't load, copy or back up your Cover Disk programs then you may have a faulty disk – it happens sometimes. Send the disk and a padded self-addressed envelope to:
ST FORMAT September Disk Returns, PO Box 21, Daventry, NN1 5BU.
We pay the return postage. Please, please, please don't send faulty disks to our Bath or Somerton offices because we don't keep stocks of Cover Disks there.

8 If you are having problems with a Cover Disk program go back and read the Cover Disk pages and any DOC files on the disk. If you still can't get the program running, call the *ST FORMAT* Cover Disk Hotline on ☎ 0225 442244 on Wednesdays between 2pm and 6pm only – we can't accept calls at any other time.

9 If you have other hardware or software queries, contact the manufacturer or publisher. Alternatively, ring the official Atari Helpline on ☎ 031 332 93233 between 6pm and 11pm Monday to Saturday and 8pm and 11pm on Sundays.

10 All *ST FORMAT* Cover Disks are double-sided. If you have an old STFM and cannot read the Cover Disk then you should upgrade your ST to a double-sided drive – it really is worth it.

WE WANT YOUR PROGRAMS

We pay for your software – so if you've got anything that's good, original and preferably short that you think really deserves to go on *STF's* Cover Disk, send it with this form and full documentation to Nick Peers, *ST FORMAT*, Cover Disk, 30 Monmouth Street, Bath, Avon BA1 2BW

Name _____

Address _____

_____

Daytime phone _____ Program title _____

_____ Total size in K _____

On a separate sheet, explain concisely what the program does and why you happen to think it's so brilliant.

Remember to: ■ Include on-disk and paper documentation ■ Write your name and address on the disk ■ Use a virus-free disk ■ Keep a copy of your program, because contributions are non-returnable ■ Enclose an attractive bribe. Not that it makes a difference, of course.

Please sign the following declaration: This program is submitted for publication in *ST FORMAT*. It is wholly my own work and I hereby agree to indemnify Future Publishing against any legal action should copyright problems arise.

Signed _____

ELSPA Prove They're Rock Hard

by Simon Forrester

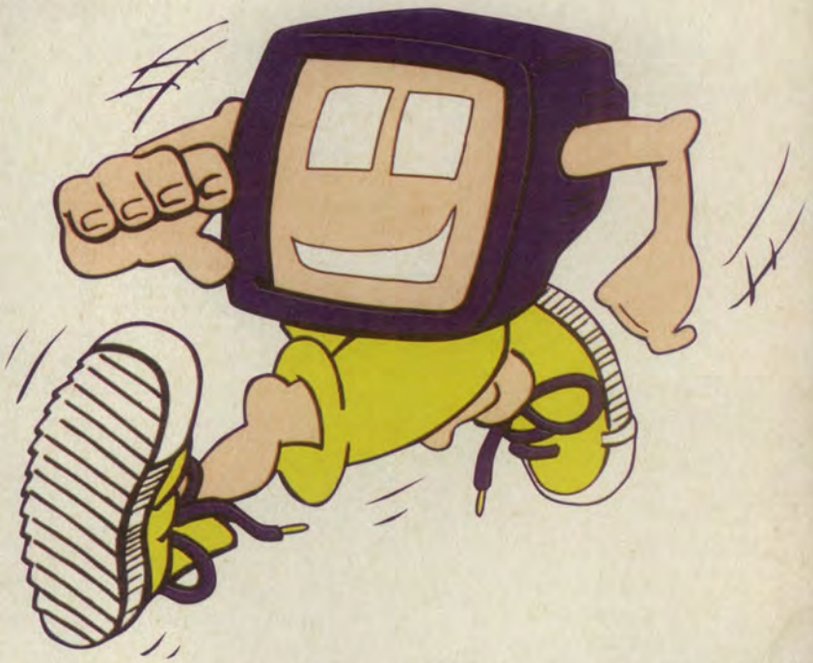
Following their new initiatives on breaking piracy in the UK, ELSPA (European Leisure Software Publishers Association) have recently carried out three successful raids, in which they discovered 500 CDs with a collective worth of £10 million. That's £20,000-worth of software on each CD.

ELSPA's Crime Unit Head, Jon Loader, sees this as justification of the fears he voiced last month: "The retrieval of £10 million of software on just 500 CDs perfectly illustrates the enormous threat posed to the commercial software industry, and, yet again, we have referred material to police anti-pornography departments."

ELSPA have recently carried out three raids, in which they discovered 500 CDs with a collective worth of £10 million

Then They Waste Some Small Fry

ELSPA haven't just been sorting out £10m CD frauds, though. As a matter of pride, Philip Richards was recently convicted of attempting to sell four pirated pieces of software, and received a £550 fine. That showed him then, didn't it.



PD Prices Slashed

Riverdene PDL, a respected member of the ST PD community, have just announced dramatic cuts in their PD prices, with further discounts for bulk orders. Up until 1 June this year, collections cost £2.50 per disk (still a low price, by all accounts), but this price has now dropped to a staggering £1.50 per disk. What's more, orders of five disks or over will be priced at £1.25 per disk.

If you're just after blank DSDD disks, Riverdene could still save you money. Prices start at £5 for 10, getting cheaper the more disks you order: 100 disks, for instance, cost £38. All disks come complete with labels (I should damned well think so) and a replacement guarantee.

Riverdene PDL have announced dramatic cuts in their PD prices

For more information, you can get in touch with Riverdene PDL on ☎ 0734 452416, or at: 30a School Road, Tilehurst, Reading, Berkshire RG3 5AN. All prices quoted include VAT and delivery.

The Competition Grows and Grows

If you're interested in PD and shareware you may well be interested to hear of *ST Handbook*, a recently-launched bimonthly, dealing with all things free or as near as dammit.

Apart from the fact that everything they've reviewed appears to have been "great", the most memorable thing in issue 3 of the *ST Handbook* is the ST ranger. For example: "After a period of intense rehabilitation, Eddie Sparks is once again ready for active service. Barely recognisable from his previous incarnation, he can now resume his fight against the criminal underworld..." Luckily for us (well, presumably) our comic book hero returns to save the planet: "Somebody is flooding the ST PD market with a deadly virus. It's wiping out masses of software. Find out who is doing it and eliminate them and the virus!"

The coverdisk smacks of PD at its most propeller-headed – a *Pacman* clone, an *Op Wolf* rip-off, and various utilities serving only vaguely useful purposes. We recommend you take a look through at least one issue, if not more. After all, at £2, what have you got to lose? *(£2 for a start – Ed)*

You can order copies from either Riverdene PDL (address in the story to the left) or contact STH directly for more information at: 1 Fordhouse Lane, Stirchley, Birmingham, B30 2NH.

Combat was an Op Wolf clone and, would you know it? It turned out to be totally crap.

STs COME ON STRONG AT THE FES

by Trenton Webb

The forthcoming Future Entertainment Show (Earl's Court, 26-30 October 1994) is now to feature its very own ST specific 'village'. As the list of events and exhibitors is finalised an Atari dedicated area has been designated, so all the best ST software and hardware can be grouped together.

The Future Entertainment Show will feature its very own ST 'village'

ST FORMAT and *Future Music* will be the hosts, giving demonstrations and answering your questions; while software publishers and hardware manufacturers will be showing off their hottest titles, giving tutorials on some of their classics and no doubt offering big savings on kit of all kinds. The exact details of who, what and when have yet to be confirmed – but every major player in the ST world should be there.

The Future Entertainment Show will have something even for those sad folks that aren't into STs. Every flavour of computer format – Amiga, PC, Mac – will be catered for, as will each and every console – including the 3D0, CDi 450, Super Game Boy, Mega Drive 32 and Jaguar.

■ *STF* heroes from days past (Nuttall and Jackson) go Q&A crazy at last year's FES.

The FES is your chance to see the best that computing has to offer, enter a host of competitions and grab some major bargains all in one day. Tickets are £6 in advance and £7 on the day or, if you fancy saving some cash and guaranteeing your place, then call ☎ 0369 4235. Miss out and your ST will hate you forever!

THE RIGHT CONNECTIONS

One of the biggest problems with a new release like the Jaguar is that ST owners, who are used to Philips or Atari monitors, will have to return to the terror of a TV running on composite video. What is actually a clear, sharp, high resolution image becomes a fuzzy mess of blurred colour and strangled sound, and there's only one thing you can do in a situation like this. (Well, two, if you count losing your lunch.) Lightwave are one of those companies that delight in making leads for every application. This time, they've come up with connections that go from the Jaguar to just about anything you care to think of: RGB monitor (£13.95); SCART TV (£13.95); Hoover and Indesit washing machines (£25.37); and even composite video (£10.95). Call Lightwave for a chat about it on ☎ 051 630 5003.

Connections that go from the Jaguar to just about anything you care to think of

■ Since writing this story, Simon's clothes have been mangled by his washing machine.

Going Live

News International Exhibitions Ltd, in cooperation with papers like *The News of the World* and *The Sun*, are getting all excited about Live '94, the consumer electronics show to be held at Earl's Court for six days from 20 September.

The show will cover everything electronic, from mobile phones to videogames

Family tickets will cost £16, and the show will cover everything electronic, from mobile phones to videogames, to a soothing background supplied by Capital (euch) Radio's top DJs and live bands. Beats dead bands, I suppose.

The War Continues

by Simon Forrester

Any of you that have been following the computer entertainment market over recent times can't have failed to notice the dramatic increase in market dominance by consoles. Despite the fact that these are processors with simply one cart slot and a few joypads (look – no keyboard), they're catching on with everyone from the age of nine upwards. In fact, it's beginning to look like home computers are becoming a thing of the past.

■ SHOCK! at the horrific battle of the chip-sets. THRILL! at the consoles' staggering rise to power. GASP! as the consoles fall back into dust.

But the next time some snotty little kid tries to shove a console in your face, set them straight on a few facts, courtesy of Gallup and ELSPA. Firstly, the UK leisure market leader as far as percentage of sales is concerned is still a home computer – the Amiga. Secondly, home computers still hold 37.8% of the market, a figure that, while having to compete with the wildly fluctuating popularity of the consoles, doesn't look like dropping.

Home computers still hold 37.8% of the market, a figure that doesn't look like dropping

Finally, though the world seems to be going crazy about the possibilities of storing 650MBytes on one CD, formats supporting this new technological revolution still only account for 5% of total UK market sales by unit.

Of a musical bent

Software Technology, the self-appointed leading UK Atari and Amiga music specialists, have recently announced the release of their score printing kit for *Breakthru* users, for a mere £49.95. (Thud as writer falls off chair.)

Other latest releases stocked by Software Technology include hard disk utilities for back up and speed up, the Novation Bass-Station MIDI control system, and some new sequencers, sample libraries and samplers.

Software Technology announce the release of their score printing kit for *Breakthru* users

We could give several pages over to their full stock list, but they'd be much happier to send it all to you themselves. Write for full details at: Freepost MR9455, Manchester, M1 8DJ, or, failing that, call ☎ 061 236 2515 and get the hard sell directly from them.

THE BLACK SCORPIONS

■ Is it (a) the Black Scorpions' (bad name, huh?) debugger or (b) a grab full of boring techie drivel?

■ A desktop, huh? You should have seen the bits we had to hide from view.

They're mean. They rode into town with their backs to the wind and their spurs a-jingling. Black Scorpion. They're hard living, hard drinking desperadoes, and they're releasing two new Falcon utilities: *BSS Debug* and *DEXtrous*.

BSS Debug, costing £39.95 from August onwards, is a 68030 symbolic debugger for all you frustrated Falcon owners who know exactly what a symbolic debugger is, and really need one.

DEXtrous is a totally different kettle of fish, replacing the monstrously bad GEM, and finally giving Falcon users an interface they can understand and use to do more than just copy the occasional file. In fact, *DEXtrous* looks like it takes off where GEM stops (that's right at the beginning, then). Billed as the cyber-iconic file manager, it'll cost between £40 and £50, and should be available from September at the latest.

If you're feeling really brave, you can talk to Black Scorpion on ☎ 021 414 1630.

Now We Are Ten

by Simon Forrester

On 29 June 1994 Peterborough exploded. What was once a quiet, peaceful Midlands town turned into the party nightmare from hell, as Arnor celebrated its tenth birthday.

Of course, they couldn't celebrate 3,653 days of constant selling without upgrading their flagship title, *Protext*. That's right – version 6.5 is now available from Arnor for a mere £99. (Writer doesn't fall off seat – it's an excellent package.) The new version boasts several advantages over version 6.0, including: graphical print preview; automatic spelling and typo correction; automatic expansion of abbreviations; search and replace multiple files

Arnor couldn't celebrate 3,653 days of constant selling without upgrading their flagship title

Now that *Protext* features a full WYSIWYG page preview option, which covers size, style, and graphics, there's no reason why you should ever use anything else. Upgrades for version 6.0 owners will cost £35.25, and brand new copies of 6.5 will set you back £99. Contact Arnor on ☎ 0733 68909.

■ Buy *Protext*, lads, and you'll get lots of girls. Buy *Protext*, girls, and...

V-ICTARI-ous

There are PD user groups by the bucketload, and probably more fanzines than there are readers, but you don't often see programming user groups now do you? ICTARI, however, is a group for anyone who programs their ST in absolutely any language.

Each month, members receive a disk full of source code, programming tips, Q&A and other useful programming bits 'n' bobs.

Probably the most surprising thing about the group is that it's entirely free to join – all you have to pay for is the postage of the disk. For more information, send an SAE to ICTARI User Group, 63 Woolsbridge Road, Ashley Heath, Ringwood, Hants, BH24 2LX.

FACE FACTTS

If you're a Falcon user you'll already know of the Falcon Fact File, a system whereby Falcon users can get in touch with like-minded owners across the globe to exchange information, help, and software. The organisers of the system are so pleased with its outstanding success that they've decided to extend the service to Atari TT owners. The service really comes into its own when faced with a user base as small as the TT's, because the machine receives little attention from the rest of the ST industry.

The Falcon FacTT File (incorporating the new machine with just a slip of typography) works by publishing a quarterly database of every member on the board, as well as providing members with disks full of the latest PD.

For more information, or a form for free membership, write to: The FFF, 11 Pound Meadow, Whitchurch, Hampshire, RG28 7LG. Include an SAE or your international equivalent.

■ A TT, an ST or a Falcon? They all look the same from the back.

ST FORMAT

THE TRYING GAME

Everbody has an idea for a game but few of us have the programming skills to turn this dream into a reality. So it pays to cheat.
Next month *ST FORMAT* checks out all the game creations systems available for the ST. We test them for ease of use and the quality of results, as well as revealling the tips and tricks that really make these systems tick.

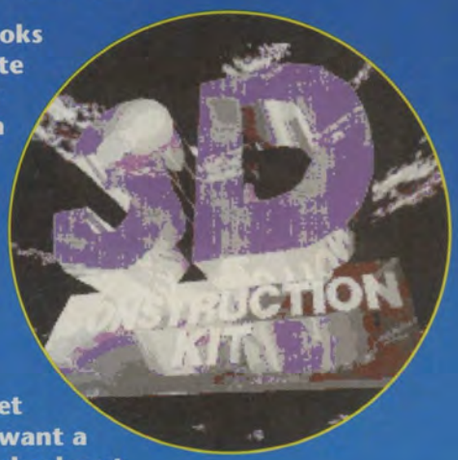
We examine:

MAGE

An all new platform games construction kit. Can this be creator you've been waiting for?

3D CONSTRUCTION KIT v1 & 2

Incentive's *Kit* looks to be the ultimate 3D package, but how good is it in the real world?



Plus: *STAC, Shoot 'Em Up Construction Kit, STOS* and many, many more

If you want to get into coding but want a head start then check out *ST FORMAT* October.

On sale Tuesday 13th September.

ATARI AT THE CES

SHOWTIME USA 1994

Every summer, Chicago plays host to the CES, an industry conference at which everyone in the video games business blags on about what they'll be doing over the next six months. Atari were there, as was Tim Tucker for *ST FORMAT*...

A few months ago it was starting to look like the four or five games already available for the Jaguar were all we'd be seeing, and that we'd be more likely to see "virtual reality holographic information superhighways" in the home before actually getting to play the smart games like *Alien Vs Predator* on the Jaguar. However, Atari's presence at the recent CES did much to allay fears that software is not forthcoming. There were over 25 titles on show, and the promise of this number reaching 30 by the end of the year, with nearly ten of them from Atari themselves.

■ And Raiden blasts Sub-Zero... ah, that's the other game. *Kasumi Ninja* appears to have taken a great idea and bettered it.

So what were the high points? Well, as usual, *Alien Vs Predator* looked great, better than ever in fact, but for God's sake, let's get it into the shops before the *Alien* concept is redundant and *Predator* is synonymous with a popular football boot. *Chequered Flag* is also coming on in leaps and bounds, performing much faster and smoother than ever before, and looking likely to challenge Sega's *Virtua Racing* on its own terms. Hurrah! Both these games are being produced by Atari themselves, as is *Kasumi Ninja*, a blatantly *Mortal Kombat*-inspired beat-'em-up with quite stunning visuals. Other titles from the guys that made your ST include *Club Drive*, an unusual 3D polygon racing game, and *Wolfenstein*, predecessor to *Doom*, and a damn fine game in its own right. In fact, *Wolfenstein*, in its own subtly anti-Nazi way, goes furthest to illustrate the difference in power between the 64-bit monster-cat-type-thing and the 16-bitters before it. Compare this to the blockily bitmapped SNES version, or even the PC original, and you'll soon realise that you did the right thing buying a Jaguar. Atari were also displaying *Blue Lightning*, a flight sim shooter, *Battlezone 2000*, the update of the classic arcade 3D tank game, and *Space Wars*, a two-player shoot-'em-up.

From third parties, there are three platform games on the way, including the bafflingly popular *Zool*, the bouncy bobcat *Bubsy*, plus a brand new creation from UBI Soft known as *Rayman*, perhaps the most colourful and graphically superior platformer. Also soon to be on the prowl is *Ruiner*, a pinball game (oh yes), *White Men Can't Jump* (which Jean Richens of Atari described, rather enticingly, as *Virtua Basketball)*, and *Graham Gooch's World Class Cricket*, possibly a console first in enabling you to participate in the noble sport without falling asleep with one of those stupid hats over your face.

Despite all this, *Doom's* still the most exciting game to be chain-sawing its way on to the Jaguar, and soon up to 32 players will be able to link up their Jags and indulge in multi-player mayhem. See the box on Jaguar hardware for more details.

■ Every time we see *Alien Vs Predator* it just gets better. Check out this title screen and you'll see what we mean. Gobsmackingly good or what?

JAGUAR HARDWARE

The CES was the venue for the presentation of the final CD-ROM drive for the Jaguar. This is like any other CD-ROM drive, except it slots into the cartridge port on the Jag and makes it look a bit like a toilet. Jean Richens of Atari took us through the potential of the new machine: "It will be out in November in the US at a highly competitive $199, and should be in Europe sometime in December or January next year. It's a stupendous product for three reasons: 1) because of its attractive price, 2) because it supports video games, music CDs and movie CDs, (as long as you have the full-motion video hardware cartridge), and 3) because it's the only new CD player with a built-in cartridge port. This port makes it possible to record games, and also enlarge the capacity, by having both a CD and cartridge running a game simultaneously."

Jean reckons there'll be four or five CD titles on launch soon, including *Demolition Man* and *Creature Shock*, but there should soon be a lot more, with at least 30 companies currently developing for the new CD system.

One of the first real developments for CD games is something called Cinepak, which enables developers to include up to three hours of video film in their games. We saw this working, and it's a damn sight better quality than the current spate of video on CD. For actual movies, though, you'll have to wait until MPEG becomes available sometime in 1995.

Another announcement from Atari concerned a voice data modem for the Jaguar. Sounding more like something you'd expect to see on your ST, this nifty little device enables players to link up over the telephone while speaking at the same time, coming with a headset and microphone (so you can shout "Got ya, ya bast" while slaying the bloke down the road, from the comfort of your own bedroom). It will enable up to 32 players to play on the same game via telecom link, in games such as *Doom, Blue Lightning* and *Battle Core*. Schmart!

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" Vol 2 (PD/Shareware) **£29.95**
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Midi files and .Mods (Music) **£TBA**

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Falcon Wing 4Mb	£179.00
Falcon Wing 14Mb	£ Call
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BlowUP 030 - Hard 1	£49.95
BlowUP 030 - Hard 2	£69.95
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Cubase Audio (New V1.10)	In Stock
FDI - Falcon Digital Interface	£233.83
FA-8 Falcon Analog In & Out	£351.33

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CoNnect v2.4x **£29.95**
Includes printed manual and registration

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Straight Fax upgrade to v2.1 **£26.00**

NEW - Exchangeable **SyQuest Drives**
105Mb, 14.5ms Drive, inc. cart **£399.00**
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Specials

The Jaguar & Games are now in Stock

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1.44Mb Floppy Drive Kit	~~£89.95~~	£69.95
The Translator		£69.95
HD-Driver Software		£19.95
ICD Link II - in Stock		£89.95
ICD Pro Utils		£39.95
Falcon Tower Kit	~~£179.95~~	£159.95
Falcon 4Mb, 32Mhz Tower		£799.00
Falcon 4Mb, 32Mhz Desktopper		
Ask for details	~~£809.90~~	£759.00

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Monochrome Monitors

The award winning SM14 is a perfect replacement for the Atari SM124/5 monochrome monitors: it exceeds Atari's original specifications. The 14" high resolution, paperwhite FST (Flatter, Squarer Tube), gives a perfectly centred, crisp, sharp image without blurring at the edges.
The SM14 comes without, and the SM14s with, a speaker. The SM14f is for the Falcon. A Tilt and Swivel stand comes as standard.

The special version for STfm/Mega ST installed with Overscan, the screen enhancer, gives a 40% bigger display.
All monitors come as a plug-in-and-go unit, complete with Atari plug, and no adaptors are necessary.

"Essential Buy, 90%"
ST Review, May 93

SM14/f	without audio	£129.95
SM14s	with audio	£149.95
OverScan ST		£39.95

MiniS - Hard Drive System

The MiniS Hard Drive System comes with drive capacities ranging from 40Mb up to 1800Mb. This full SCSI system is hardware compatible with all Atari computers, Amiga, Mac, PC etc. They are unrivalled in size, noise, speed, and style and come with a thru port for expansion.
It is the only Hard drive awarded an **Essential Buy of 92% - Atari ST Review Christmas '93, and a Gold Award of 93% - ST Format Feb. '94**

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540Mb	£599	£639
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Please add £20 to ST(FM/e) if the ICD Link II is required.
Heavy Duty professional cases with 60W Power Supply, add £50.
All Prices include VAT

Falcon 030 Systems - 32Mhz

The Falcon is fast becoming the prefered choice for 8 track digital recording, with powerful programs such as Cubase Audio using it to its full potential. The DSP chip opens up a whole new world of Sound and Graphics. System Solutions now supply 32Mhz Falcon 030 computers from stock.
PowerUp2 is a brand new 32Mhz accelerator for the Falcon, available now. PowerUp2 doubles the CPU clock speed and does not take up the internal expansion slot.
We supply systems for Music, Desk Top Publishing, Image Manipulation, Animation, Desk Top Video, fax & modem use etc. Please phone for your personal quotation of a tailor-made Falcon 030 System.

PowerUp2 kit	£59.95
PowerUp2 fitted	£99.95
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with PowerUp2 fitted	£659.00

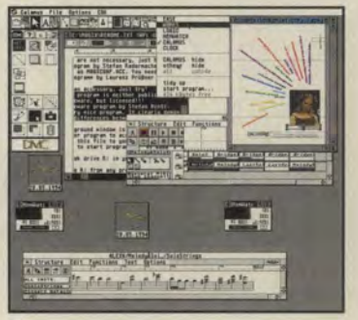
MagiC - Multitasking Operating System

"It's like running an accelerator and getting the multitasking thrown in for free." **ST USER, Feb. 1994**
MagiC is a full TOS replacement, a very fast disk filing system; has accelerated serial, midi and printing routines, and is, of course, a true pre-emptive multitasking system.
MagiC Desk, a replacement Desktop and a powerful command shell have been included. **MagiC** runs on all ST, Mega and TT computers with 512Kb, but 2Mb is recommended for a useful working system. The Falcon version is expected later this year.

"If you want a multi-tasking system that works simply and realiably, then MagiC is for you." **ST Review, June 1994.**

Magic (Intro price)	~~£69.95~~	£59.95
Magic and **NVDI**	~~£139.90~~	£89.95
Magic and **Kobold**	~~£109.90~~	£99.95

NB: Excellent with Calamus SL. Compatible with Notator Logic, but not with Notator SL and not yet compatible with Cubase.



NVDI

NVDI replaces the Atari display routines. Screen updates with NVDI are 3-10 times faster. Works with all TOS versions on all Atari ST, MegaST, TT and Falcon 030 computers.
Cubase and Notator compatible.
'Compatibility is remarkable and we have yet to find a program that is not compatible with NVDI'.
ST Review Issue 16, August 1993.

NVDI version 2.5	£49.95
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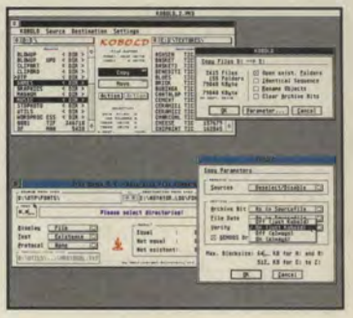
Kobold

Kobold is a high speed file manager. It's unique handling of the Atari file system gives unrivalled speed when copying, moving and deleting files. Copies 1000 files, (10Mb) in 45sec, (GEMDOS 5:35min) Use Kobold for Backups, Formatting Floppies, Move/Copying, Updates, Timed Jobs, etc.. It also includes a script learn function to automate repetative functions.
Can be run as an .ACC or .PRG
Kobold 2.5 (Intro Price) ~~£59.95~~ **£49.95**



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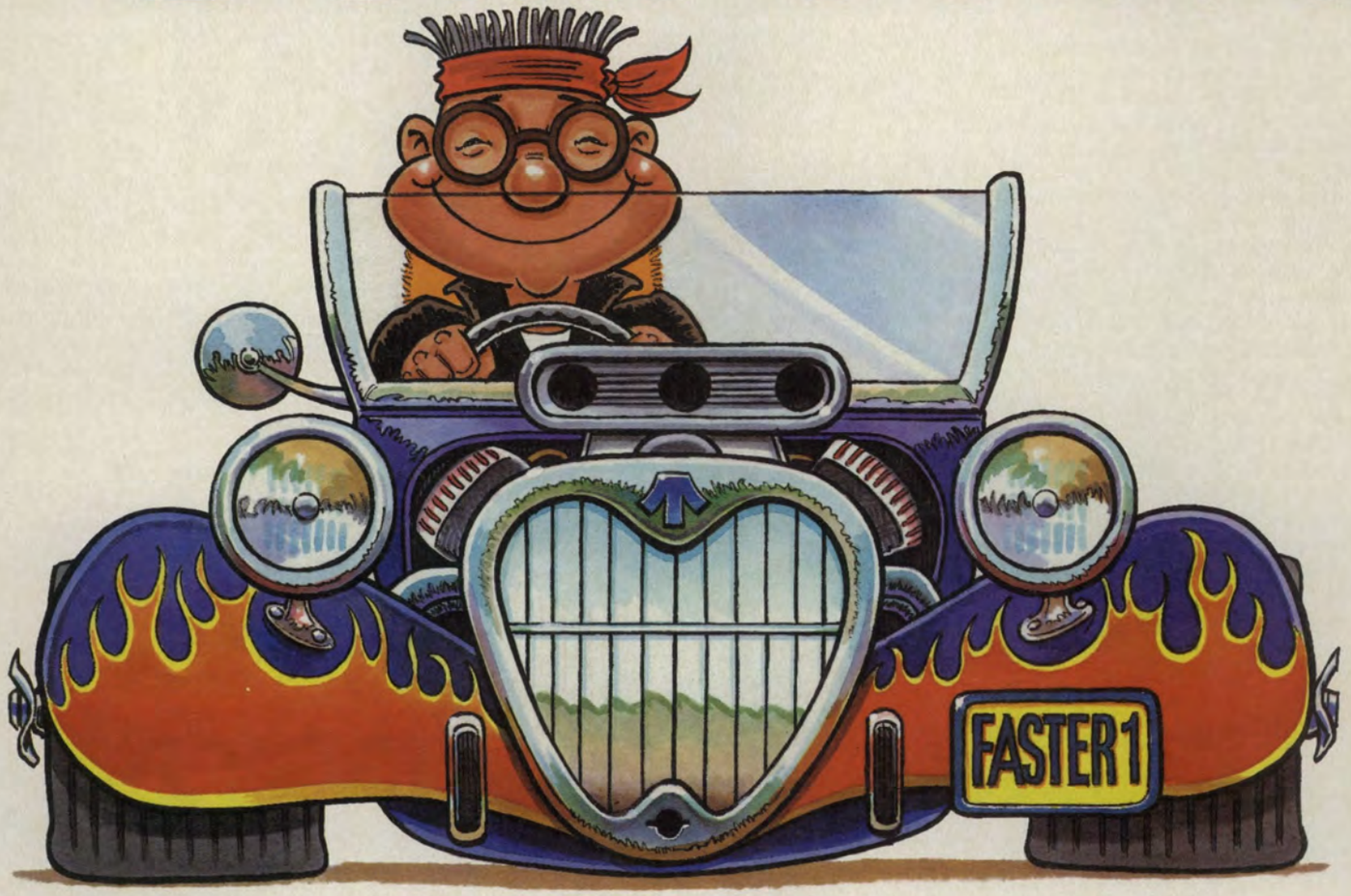


Customise your ST! It'll go faster, look better and be the envy of ST owners. You can transform your production-line machine into a hot rod quickly, easily and for surprisingly little cash.

How do you turbocharge your ST? There are seven distinct areas, all of which will enhance your machine's performance and even its appearance. Simply find the icon that matches the area that you're interested in and drive, man, drive!

MEMORY: The more RAM your ST is packing, the more you can do with it, it's that simple! Find out all you need to know to RAMp up your ST on page 18.

DRIVES: Hard or floppy, it really doesn't matter. The more drives you have, the more data you can cram into your machine, and faster. Turn to page 19.

SYSTEM ENHANCEMENTS: GEM is all well and good, but there is a host of sophisticated ways to make your ST motor. Fire up the engine on page 20.

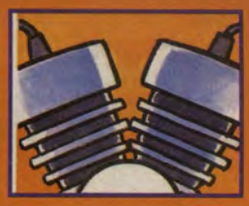
ACCELERATORS: Feel the need for speed. Make your ST run faster than you thought possible with both soft and hardware. Hit the metal on page 22.

OPERATING SYSTEMS: Petrol or methanol? Put a tiger into your computer's tank by adding a brand new operating system. "Fill 'er up then, Jacko" on page 23.

GRAPHICS AND DISPLAYS: Flash colours that look cool too. The full range of graphics cards and monitors is stripped down and given the full MOT on page 24.

PHYSICAL: Change your ST's appearance and performance. Everything's covered, from bodywork through to fluffy dice (well almost). The forecourt shop is on page 26.

MEMORY UPGRADES



If you only have half a meg of memory inside your ST you're working in a sadly handicapped environment – there are almost no new games or serious software under development that are able to run on a standard 512K ST.

You need at least 1MByte of memory for so many different programs that you're missing out if you only have 512K. For instance, with 1MByte you can run DTP programs like *Calamus*, use powerful graphics applications like *POV 2* and *Xenomorf*, use top-of-the-range MIDI software, play fantastic 1MByte games like *Civilization* and *Lemmings 2*, create long sound samples, fill every Desk Accessory slot and run gigantic RAMdisks.

Go the whole hog

The obvious thing to do is upgrade your STE or STFM to at least 1MByte, 2MBytes or 4MBytes of RAM. It's not that expensive to upgrade your ST; if you shop around you can get two 256K SIMMs for an STE for as little as £10, and a half megabyte upgrade for an STFM can cost as little as £40. You really should consider going the whole hog and upgrade to the maximum RAM your machine can take – 4MBytes for STs and 16MBytes for Falcons. Almost all upgrades use SIMMs so it can be inexpensive to buy a bare board and source the SIMMs yourself – SIMM prices constantly change so it pays to shop around for the best buy.

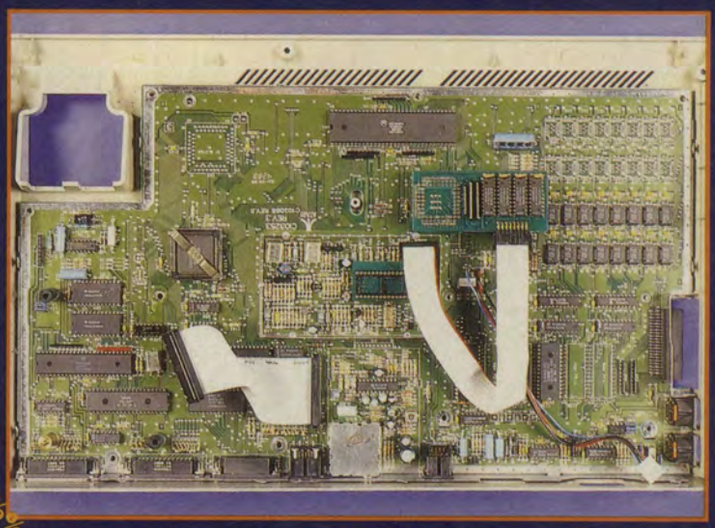
It's so easy

Upgrading your STE is easy. Take off the lid, remove the power supply cover and plug in the SIMMs. Upgrading an STFM isn't quite so simple, but it isn't too hard to do yourself. In almost all cases you just plug the upgrade over two chips on the motherboard.

If you want to see how easy it is to upgrade an STFM take a look at the Megabyte Blues feature in *ST FORMAT* 58.

Evesham 512K Solderless Upgrade

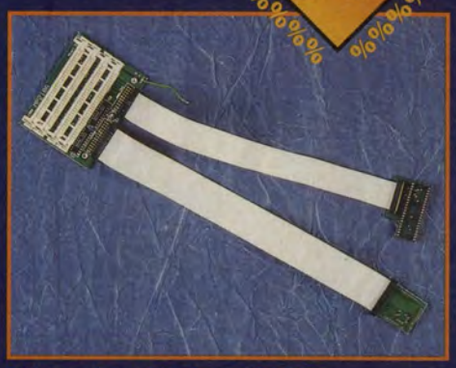
This upgrade for the STFM is a straight 512K board to take your ST to 1MByte. Two small tidy boards slot neatly over the top of the MMU and shifter chips. The upgrade is simple to install in all STFMs with a socketed MMU, but not so easy to fix to a surface mounted chip. Little or no technical knowledge needed.



■ Evesham Micros' 512K board for the STFM is easy enough to install in well under an hour - why not upgrade today?

Evesham 512K Solderless Upgrade
- AVAILABLE FROM: Evesham Micros ☎ 0386 765500
- PRICE: £49.95

79



■ It's small and it's clever. XtraRAM Deluxe offers an upward upgrade path for more RAM in your STFM.

Marpet XtraRAM Deluxe

When it comes to sheer professional design and construction, Marpet's XtraRAM Deluxe is the Rolls Royce of memory upgrades. The XtraRAM board comes in three sections (linked by ribbon cables) which fit over the MMU and video shifter chips, while the large board mounts above the shield. This larger board has four SIMMs sockets, enabling you to upgrade from 1MByte to 2 or 4 MBytes by adding more SIMMs.

Marpet XtraRAM Deluxe
- AVAILABLE FROM: Marpet Developments ☎ 0423 712600
- PRICE: 1MByte £44.99; 2MBytes £109.99; 4MBytes £179.99

87

■ Upgrade your STE to a stunning 12MBytes with the XtraRAM +8 board.

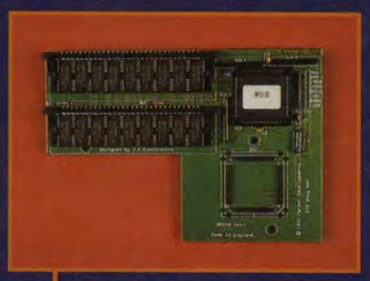
Marpet XtraRAM +8

The XtraRAM +8 from Marpet is a simple plug-in board that fits over the 68000 chip in the STE. You can add two 1MByte SIMMs or two 4MByte SIMMs to take your STE up to a massive 12MBytes. Clever software enables your STE to 'see' the extra RAM and either use it as working space or load software into it.

This board is a must for DTP, graphics and memory-hungry sound sampling software, but it only works if you have TOS 2.06 installed. Highly recommended for the power ST user.

Marpet XtraRAM +8
- AVAILABLE FROM: Marpet Developments ☎ 0423 712600
- PRICE: £60 unpopulated; SIMM prices on application

92



■ FalconWing: if you want to upgrade from 4MBytes to 16MBytes later on you simply replace the SIMMs.

FalconWing 4/16MByte upgrade

If you have a 1MByte Falcon030 then upgrade it now. A 1MByte Falcon is practically useless when it comes to serious applications of any kind because there's so little room to run any software. You need to get either a 4MByte or 16MByte upgrade, depending on your needs – a 4MByte upgrade is probably suitable for most home systems. The FalconWing uses standard 1MByte or 4MByte SIMMs and simply plugs into the internal expansion slot.

FalconWing 4/16MByte upgrade
- AVAILABLE FROM: System Solutions ☎ 0753 832212
- PRICE: Unpopulated £49; Call for SIMM prices

85

DRIVES

Hard drives are desirable things. Massive data storage, fast loading time, being able to keep all of your programs and data files together, and shoving that huge pile of floppies in the cupboard for good – all this and more is yours with a hard drive. You really need a hard drive to get the best from modern applications like *Calamus SL, Protext 6* or *SpeedoGDOS*. Lots of recent games like *Elite 2* can run from hard drive, too. Try using a friend's. You'll be hooked...

All modern hard drives come fully cased, formatted ready for use, and with any cables you need. To use one straight away you just plug it into the DMA port on the back of your ST, or the SCSI port on your Falcon.

MiniS Tower Drives

Odd-looking drives these, housed in upright mini-tower cases rather than chunky desktop boxes, and better for it. Like the Gasteiner drives they have no internal host adaptor, but System Solutions supply the ICD link for your ST, while Falcons and TTs just plug in and go. The MiniS drives are corkers, and at a good price to boot.

■ MiniS Tower drives look hard and work hard.

MiniS Tower Drives

● **AVAILABLE FROM:**
System Solutions
☎ 0753 832212
● **PRICE:**
£249 for a 120Mb Falcon drive and £289 for STs. Call for other sizes

93

Protar Series 2

Protar's software isn't quite up to ICD standard (see the ICD FaST drives to the right), but the drives are extremely well built, reliable and almost silent in use. They also have a SCSI through-port for daisy-chaining other drives, and ample space in the case for adding another internal mechanism (such as another drive, for example).

Protar Series 2

● **AVAILABLE FROM:**
Analogic Computers
☎ 081 546 9575
● **PRICE:**
From £299.95 for 120Mb to £449.95 for 240Mb Call for smaller or larger drives

92

Gasteiner Drives

● **AVAILABLE FROM:**
Gasteiner ☎ 081 345600
● **PRICE:**
170Mb £259 for TT/Falcon, £299 including Top Link for STs

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Gasteiner Drives

Housed in upright cases like the MiniS drives, the Gasteiner models are examples of solid engineering. The drives plug straight into a Falcon, but you'll need the Top Link host adaptor to use them with an ST, costing you £40 extra. The *GESoft* software is probably the weakest of the bunch, but the drive itself is an excellent piece of kit.

ICD FaST Drives

Supplied with inbuilt clock and the excellent ICD caching and management software. Quiet, reliable and fast, if a tad expensive. Solid cases, and small enough for all desks.

■ When we say fast, we actually mean FaST. Odd eh?

ICD FaST Drives

● **AVAILABLE FROM:**
First Computer Centre
☎ 0532 319444
● **PRICE:**
£339.99 52MBytes
£1,345.99 2GBytes

83

HOST ADAPTORS

Atari didn't fit a SCSI interface on the ST, so all drives need a Host Adaptor to talk to a hard drive. Unless you're planning to fit extra drives into the case at a later date, you don't need to worry much. If you are planning to fit an extra drive, check with the suppliers (listed above) whether the drive you're thinking of will work with the adaptor supplied. Some of them don't seem to like talking to certain drive types, so it's always worth checking first.

- **Gasteiner supply their own Top Link adaptor.**
- **Systems Solutions use their new Translator.**
- **Protar fit their own adaptor.**
- **The FaST drives use the classic ICD AdSCSI adaptor.**

HIGH DENSITY DRIVES

Disk drives are great: you can move huge amounts of data between a floppy disk and your ST at high speeds and you can store 800K on a standard DD (double-density) floppy disk. But with the world being the way it is, 800K is not enough for really large files and programs used for today's serious graphics applications. Indeed, a single 24-bit Targa picture file can be several megabytes in size.

The answer is to install an HD (high density) drive in your ST. An HD disk can store twice as much data as a DD disk, meaning that you can work with larger files and store more data in your disk box. The drive controllers in almost all STFMs and all STEs can run at the higher clock speed required by an HD drive, but bear in mind that the drives themselves are difficult to install, involving some soldering directly to the main circuit board. Installing the drives is not a job for a novice – ask your supplier to quote an installation fee.

■ Not just floppy but dense as well.

Elco HD Drive Kit

Reviewed back in *STF* 36, this kit includes a small board containing a 16MHz clock to increase the speed of the disk drive controller, a large bunch of wires to solder to your circuit board – not a job for the faint-hearted – and a compatible HD drive and driver software. A good professional kit.

Elco HD Drive Kit

● **AVAILABLE FROM:**
System Solutions
☎ 0753 832212
● **PRICE:**
£79.95 inc HD drive

87

Bitz HD Drive Kit

● **AVAILABLE FROM:**
Analogic Computers
☎ 081 546 9575
● **PRICE:**
£69.95 inc HD drive

89

Bitz HD Drive Kit

This works in a different way to the Elco kit and is easier to install (see the installation guide in *STF* 54), but is still no job for the amateur. A small board is soldered to the WD1772 drive controller chip with just three wires to connect to the circuit board. A hard drive and *Bitz* formatting software is supplied.

SYSTEM ENHANCEMENTS

REPLACEMENT DESKTOP SYSTEMS

To really benefit from a new desktop you will need a hard drive and at least 2MBytes of memory. Have a look at the three offerings reviewed here. There's sure to be one to suit your needs and your pocket.

Adding a replacement desktop is one of the easiest ways of customising your ST. They can add some new tricks to your old GEM-based repertoire and some colour too.

All of these replacement desktops are simple to install. Just stick the program you choose in an Auto folder on your boot drive and it will load automatically at boot up.

Teradesk

Teradesk is a truly excellent replacement desktop with many advanced features, and it's in the Public Domain. It is without equal in the free software category and also strongly challenges commercial offerings. Programs and folders can be dragged on to the desktop, and alternative GDOS fonts used for window text displays (if installed). The desktop pattern can be changed, as can the colours if used in low or medium resolution. Multiple icon handling is excellent: many are available in the PD and a good few are supplied with the program. Full documentation listing keyboard short cuts is also provided. *Teradesk* will run from wherever you put it. Place all the files in a folder and simply run the program at boot up. Get the software from all good PD Libraries: the current version is v1.38.

■ ***Teradesk* is free for all. Grab a copy now and have some fun.**

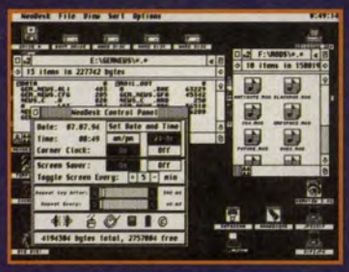
Teradesk
- **AVAILABLE FROM: all good PD libraries**
- **PRICE: PD prices**

81

Neodesk 3

Neodesk is fully multitasking compatible and comes with a suite of utilities. Backdrop pictures can be used but there are limitations on the number of applications that can be run from icons on the desktop. A host of a great features, like the desktop notepad, makes *Neodesk* great value for money. *Neodesk 4* is soon to be available in the UK and will offer yet more useful functions to its already friendly desktop environment.

Neodesk can be run from anywhere on your drive as long as a supplied cookie jar program and a program called *Neoload* are run from the Auto folder at boot up.



■ **A reliable favourite, *Neodesk* is a great package.**

Neodesk 3
- **FROM: Compo Software**
- **☎ 0487 3582**
- **PRICE: £19.99**

82

Ease

Although it lacks several features, *Ease* is still the best ST desktop package available – offering multitasking and GDOS-compatibility, and with power features coming out of its ears. It's written in 100% assembler code, ensuring that the functions are all lightning fast, and there's also an on-line help facility. *Ease* will run from the folder of your choice and it keeps all its files within that folder.

Ease
- **AVAILABLE FROM: System Solutions**
- **☎ 0753 832212**
- **PRICE: £TBA**

91

Big file selector decisions...

For simplicity, go for *LGFS*. If you prefer lots of advanced features, and keyboard short cuts as well as mouse power, *Selectric* is for you. If, however, you need the Disk Format option, you'll have to cough up the dosh for *UIS 3*.

FILE SELECTORS

One of the cheapest and easiest things you can upgrade on your ST is the file selector. If you use any serious applications you'll feel the benefit. The standard file selector leaves much to be desired.

Every time you need to load a file into an application you will be presented with the file selector. The options open to you at this point vary according to which one you have loaded.

Little Green File Selector
- **AVAILABLE FROM: all good PD libraries**
- **PRICE: PD prices**

75

Little Green File Selector

This is a competent old favourite and is freely available in the PD or on BBS systems. Nice clear presentation of the available masks and paths coupled with a colour display in low or medium resolution makes it an excellent and straightforward choice. This file selector's particularly popular among the *STF* staff, for some reason.

Selectric

This nifty German offering is Shareware, so you can try before you buy. All the active drives are displayed, and several masks and pre-defined paths are available. Add to this the facility to copy, move and delete files, the ability to create folders and a complete set of intelligent keyboard short cuts, and you have a powerful program. There are also loads of configuration options included. Definitely one for the tech-heads.

Selectric
- **AVAILABLE FROM: all good PD libraries**
- **PRICE: £13**

81

UIS 3
- **AVAILABLE FROM: FaST Club**
- **☎ 0602 455250**
- **PRICE: £14.95**

83

UIS 3

This is a commercial offering and it's quite a package. The keyboard short cuts are not handled quite as well as they are by *Selectric*, but it offers most of the features listed above.

UIS has one extra advantage – a Disk Format option which can be a life-saver. The screen layout is simple and easy to follow, with a selection of text sizes and displays, and the comprehensive manual will get you started in no time.

THE UPGRADE SHOP
TEL 0625 503448

All prices include VAT @ 17.5% but exclude delivery (unless otherwise stated) please see below.
Orders can be placed by TELEPHONE quoting credit card details or by MAIL ORDER, please make cheques and postal orders payeable to "THE UPGRADE SHOP".
1 year warranty on all products (unless otherwise stated), 4 Months on repairs.
Prices subject to change without notice.

SYSTEM UPGRADES

MARPET XRAM DELUXE KITS

For STF/STFM. These kits use simm modules to upgrade to a maximum of 4mb. Same day fitting service for £15.

XRAM UNPOPULATED	**£24.99**
520 to 1MB	**£32.99**
520 to 2MB	**£79.99**
520 to 4MB	**£129.99**

DOUBLE UPGRADE 1MB XRAM and DOUBLE SIDED DRIVE £72.00

STE KITS

All kits include comprehensive fitting instructions and a ramtest disk. Same day fitting available for only £7.00.

520 to 1MB	**£8.99**
520 to 2MB	**£55.00**
520 to 4MB	**£109.00**

FOR OTHER VARIATIONS ON UPGRADES PLEASE CALL

TOS 2.06

The latest Atari operating system for your ST. Simple plug in installation for most machines. Includes manual switch so that the old Tos can be left in your machine

TOS 2.06 STE	**£60.00**
TOS 2.06 ST,STM,STF(M)	**£65.00**

OVERSCAN

Remove the border and get more workspace. For ST,STF,STM and STFM computers.

OVERSCAN £39.99

HIGH DENSITY DRIVER MODULE

Read and write to High density disks (1.4mb). Fully automatic detection of disk type. Supports 2 drives of different combinations. TOS 2.06 version available now, please ring for details of TOS 1.XX version. (Requires High density 2MB Disc drive.)

HIGH DENSITY MODULE	**£25.00**
HIGH DENSITY MODULE AND 2MB DRIVE	**£63.00**

FITTING SERVICE AVAILABLE ON ALL UPGRADES FOR £15.00

MONITORS

T.U.S. 14" MONO

The T.U.S. 14" Mono monitor can be used on th ST, FALCON or P.C. without modification. Displays from 640*400 (ST - overscan compatible) to 1024*768 (FALCON or PC super VGA). Supplied with tilt and swivel stand, ST or Falcon adaptor cable and enhanced warranty support.

New Low price £109.00

TUS 14" COLOUR SUPER VGA

.28dp Super VGA colour monitor for Falcons and P.C.'s. Displays from 640*480 to 1024*768. Includes Tilt and swivel stand.

14" COLOUR SVGA £229.00

FALCON CABLE £8.99

FALCON 030

FALCON 1MB NO HD	£489
FALCON 4MB NO HD	£689
FALCON 4MB 64MB HD	£789
FALCON 4MB 127MB HD	£889
68882 CO PROCESSOR	£CALL
FALCON MEMORY	£CALL

PC EMULATORS

For the ST and STE

PC SPEED ST,STE	**£55.00**
ATSPEED ST	**£139.00**
ATSPEED STE ADAPTOR	**£29.00**

FORGET ME

Keep the date and time of your files. For ST,STE and Falcon

Without through port	£13.99
With through port	£16.99

MISCELLANEOUS

QUALITY 290 DPI REPLACEMENT MOUSE	£9.99
TRACKBALL	£29.99
JOYSTICKS FROM	£7.99
DISKS BOX OF 10 DSDD	£5.99
DISKS BOX OF 10 DSHD	£9.99
DISK BOXES FROM	£6.99

HARD DRIVES

BARE CASE'S WITH POWER SUPPLY AND FALCON CABLE FROM £129.99

170MB DRIVE WITH ICD LINK CONTROLLER AND CASE FOR ST/STE'S FROM £349.99

CASES, CABLES, DRIVES AVAILABLE CALL FOR PRICES.

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DEFENDER II
9 LIVES
ENTERPRISE
STAR BREAKER
PRINCE
BADLANDS PETE
CHRONICLES OF OMEGA
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SPARES SHOP

SPARE PARTS

SERVICE EXCHANGE.

Parts available from stock. Fast delivery of exchange itmes. If a part is not listed that you require please ring. ALL SERVICE EXCHANGE PARTS COME WITH A 4 MONTH WARRANTY.

SERVICE EXCHANGE.

STFM MOTHERBOARD	£45.00
STE MOTHERBOARD	£49.00
POWER SUPPLY	£26.00
KEYBOARD	£35.00
INDIVIDUAL ATARI IC'S	£CALL

NEW PARTS.

Full 12 months warranty. All parts are tested before dispatch.

INTERNAL REPLACEMENT DRIVE KIT

For any ST with INTERNAL drive. High quality mechanism, with standoffs for old ST's if required.
1MB or 2MB drive supplied £39.99

POWER SUPPLIES

New PLUG IN replacement, includes power switch and mains connector, no soldering required. £33.99

REPAIRS AND FITTINGS

Fully trained engineers for a reliable repair. All jobs quoted for individually (no fixed prices). 48 hour turnround on most machines. Long 4 months warranty as standard. Courier collection and return available for £14.00.
We can fit any of the advertised products to your machine for a one off fitting charge of £15.00. This means that if you require say an upgrade and overscan fitted then the charge is only £15.00.
Please ring for an appointment before bringing your machine or call if courier collection is required. Please ensure all parcels collected are adequatley packaged.

THE UPGRADE SHOP holds the right to refuse any parts under the SERVICE EXCHANGE scheme where the parts have been damaged by mistreatment however caused. Please ring for details if unsure.

37 CROSSALL STREET, MACCLESFIELD, CHESHIRE. SK11 6QF
MONDAY - FRIDAY 9:00AM - 6:00PM SATURDAY 9:00AM - 5:00PM
TECHNICAL SUPPORT TUE, WED, THUR 6:30PM - 8:00PM
SAME DAY SERVICE AVAILABLE FOR UPGRADES AND MOST REPAIRS
VISA PLEASE RING BEFORE YOU BRING **ACCESS**

DELIVERY CHARGES
Small items under £50.00 please add £3.00 P&P.
Large items and orders over £50.00 add £7.00 courier charge.
Courier Pickup for Upgrades and Repairs £7.00

ACCELERATORS

SOFTWARE ACCELERATORS

If you've ever noticed how slow GEM can be and you'd like that extra kick of speed without splashing out for a hardware accelerator, a software solution could be for you. Software accelerators don't increase the actual speed of your ST, instead they replace most of the old 'C' code in TOS (which deals with screen displays and suchlike) with blisteringly fast assembly language routines. That DTP program with the slo-o-o-o-ow screen updates can be given new life; graphics applications can be supercharged; GDOS programs can be given a big speed injection; even the humble Desktop will scream along. Most games won't benefit, but if you use your ST at all seriously you'll wonder how you ever did without one.

Installation

Installing a software accelerator is simple – just drop the program into your Auto folder and re-boot. Both programs featured here come with helpful configuration Accessories, too. Just re-boot your machine and sit back and enjoy.

HARDWARE ACCELERATORS

Installing a hardware accelerator inside your ST can drastically improve the operating speed of any software that's particularly processor intensive. Typical software that benefits from a hardware accelerator includes desktop publishing software like *Calamus S* and *SL*, spreadsheets, graphics packages like *Studio Photo, True Image* and DA's *Vector Professional* and word processors and document processors like *AtariWorks* and *Papyrus Gold*.

If you are using multitasking operating systems like MultiTOS, MagiC (new name, same great software) or Geneva in conjunction with *SpeedoGDOS*, then you almost certainly should be considering a hardware accelerator.

Some software may not be compatible with the higher clock speeds of the accelerators – the normal speed of a standard ST is 8MHz – but you can always swap back to the standard operating speed using software control.

NVDI 2.5

Completely replaces the old VDI (Virtual Device Interface) code with turbocharged routines. The speed increase over a non-NVDI machine fair slaps you in the face. NVDI also offers a much faster replacement for standard GDOS, enables you to use snazzy fonts on the Desktop and in programs, and can be configured at will with the supplied Desk Accessory and XControl CPX modules. It's compatible with 99.9% of software, and if you have a problem you can easily turn it off. Installation is easy with the supplied program. It's fast, slick, and we cry whenever we have to use an ST without it. Cracking stuff.

■ Look at the speed increase on that! Exceed the speed limit without breaking the bank, using NVDI.

NVDI 2.5
- AVAILABLE FROM: System Solutions
- ☎ 0753 832212
- PRICE: £49.95

90

ICD AdSpeed STE

When we reviewed the ICD AdSpeed STE back in issue 42 we gave it a respectable 81%, and that excellent score still holds up despite the fact that it was almost two years ago that we tested this 16MHz accelerator.

Installing the board in your STE is simple. Just remove the Motorola 68000 chip from its PLCC socket and replace it with the AdSpeed board – it only fits in one way around so you can't make a hash of it. An additional socket on the board enables you to add an optional 68881 maths coprocessor, although there is very little software that utilises the extra maths functions apart from some of the newer graphics software designed for the Falcon. We thoroughly recommend this upgrade for your STE. An oldie but definitely a goodie.

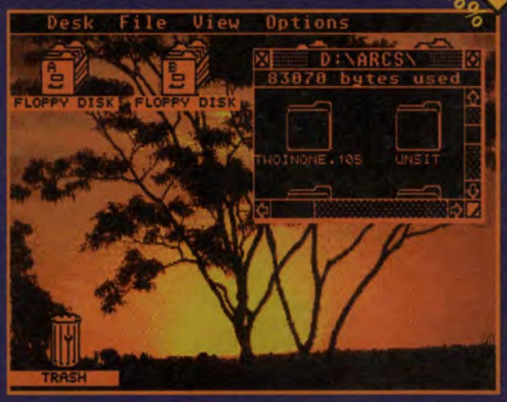
■ Make your ST a boy-racer with ICD's AdSpeed accelerator.

ICD AdSpeed STE
- AVAILABLE FROM: First Computer Centre
- ☎ 0532 319444
- PRICE: £159.99

81

Warp9

A useful accelerator from the Codehead stable, but not quite in the NVDI league. It doesn't offer a GDOS replacement, but it does provide alternative screen fonts, mouse acceleration, a screensaver and it can replace the boring Desktop with a picture. The screensaver is a neat feature, making use of 'Extend-O-Save' modules – little add-on bits of program code – to provide lots of different effects, and there are lots of free modules available from PD Libraries and BBS systems. Not as fast as NVDI, but still a worthwhile speed improvement, and cheaper with it.



■ Coo! As well as speed, *Warp9* gives you nice Desktop backdrops.

Warp9
- AVAILABLE FROM: FaST Club
- ☎ 0602 455250
- PRICE: £29.95

82

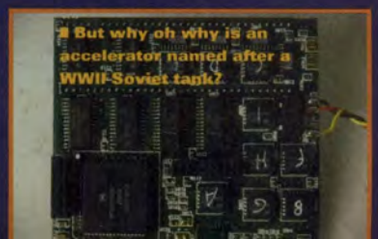
T-28 and T-36 Accelerators

System Solutions' T-28 and T-36 are currently in the middle of a redesign, although the new versions are expected to be in stock "any day now".

The new boards are designed primarily for the STFM and MegaST and run at speeds of 28MHz and 36MHz, accelerating your ST to 3.5 times and 4.5 times its normal operating speed – a fantastic increase in processing power. The board fits over the Motorola 68000 of the STFM and MegaST, which means you have to solder a socket on to the chip and then plug the board over the top. This isn't an easy job, and you're better off sending your ST to System Solutions for safe, pain-free installation.

An STE adaptor is promised in the near future enabling these high-speed boards to be used in any ST. Watch out for a review of the new T range of accelerators in *ST FORMAT* soon.

T-28 and T-36 Accelerators
- AVAILABLE FROM: System Solutions
- ☎ 0753 832212
- PRICE: call System Solutions for prices



■ But why oh why is an accelerator named after a WWII Soviet tank?

OPERATING SYSTEMS

All computers need an operating system. The OS provides an environment within which you run programs, copy files, plug in and control peripheral devices and do all the other things STs do. Shortly after the ST first appeared, its own operating system TOS (The Operating System) was hailed as a modern marvel, because although the first STs had to load this operating system from disk like most other machines, soon TOS was provided on a chip inside the ST. So as soon as you switched on you were ready to go, with no time or memory lost in loading the OS.

New and better versions of TOS have been released for the ST over the years, the latest one being v2.06. But lately there's been a rush of brand new OSs and, to prove how things go round in circles, instead of being plugged in they're loaded from disk. Installation is resultingly easy, with no hardware modifications needed, but you will need plenty of RAM to use them. They provide new and improved features that you don't get in standard TOS, but you may not need them unless you're a 'power user'. Check out what they do, and see if you're tempted.

MultiTOS

MultiTOS is Atari's own replacement operating system for all Atari Motorola 68030 based machines, the Falcon and the TT – making it one of the most versatile. Though a new version of TOS, MultiTOS differs from other multitasking software in that it actually runs both tasks at once using high speed switching between them. (Others normally let you work on the top application while the bottom one freezes.) MultiTOS' Adaptive Prioritisation contributes to make all multitask operations efficient, while it has also been written to take advantage of a feature of the 68030 processor called Memory Protection. This enables several programs to run concurrently without interfering with each other – if one crashes, the rest of the system continues without problems. Machines with older processors (68000, 68010 and 68020) don't have built-in memory protection, which makes installing MultiTOS into an STFM or STE a slight gamble.

MultiTOS
- **AVAILABLE FROM:** HiSoft/AVR ☎ 0525 718181
- **PRICE: £49.95**

75

TOS UPGRADES

Back in *STF* 61 - turn to page if you missed it - we told you all about the benefits of upgrading your ST to TOS 2.06. A much better Desktop with keyboard short cuts, improved file handling and custom designed icons are only a few of the benefits you can get from a TOS upgrade. The modern breed of TOS upgrades are switchable too, so you can easily go back to your old TOS if you find a program that's unhappy with TOS 2, like older software written in *STOS*. *STF* 62 also gave you comprehensive guides to fitting and using TOS 2, and we even showed you how to design your own Desktop icons.

TBoard 64 STFM/68 STE Upgrade

■ This bit of circuitry can improve the way you work...

This board involves a soldering iron job – installation isn't that hard if your STE has socketed ROMs, but if they're surface mounted, it's a little fiddly. As it's software switched there's no messy drilling to fit a switch. A recommended board, but check to see if you have socketed ROM chips before deciding.

TBoard Upgrade
- **AVAILABLE FROM:** Compo ☎ 0487 3582
- **PRICE: £65**

84

Amitar Solderless STE/STFM TOS Switcher

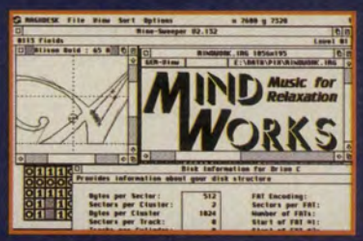
A good piece of design, this - no soldering to do, and you can fit it in under an hour with no technical knowledge. You need to drill a hole to mount the toggle switch, but that's as hard as it gets. Analogic Computers supply a TOS 2 manual, and for £3 they can also supply you with a PD disk with all the TOS 2 software you need. The STFM version fits on to the Glue chip using simple connectors, and covers all variants of the FM motherboard. Hassle free and brilliant.

Amitar TOS Switcher
- **AVAILABLE FROM:** Analogic Computers ☎ 081 5469575
- **PRICE: £59.95**

90

MagiC

A total operating system replacement written in 100% machine code for optimum speed, MagiC completely overwrites TOS for impressively fast multitasking (time slicing, which involves assigning the computer to the largest processing work while you still operate other programs). It runs all standard ST/TT programs, and Auto folder programs load as normal once MagiC is installed. Any application can be interrupted to reveal the manager screen, which shows you the exact memory usage of every program being used, and memory can be freed up by deleting them. MagiC does come with its own desktop, although something like *Neodesk 3* is recommended, and there is some minor hard drive software incompatibility. These however are minimal disadvantages, and MagiC offers a great deal, especially with the imminent arrival of *Ease*, its own desktop. You'll need to be packing at least 2MBytes of RAM to run MagiC.



■ MagiC is a real smooth operator, simultaneously working on all your favourite ST applications.

MagiC
- **AVAILABLE FROM:** System Solutions ☎ 0753 832212
- **PRICE: £69.95**

94

Geneva

In terms of competing alternative operating systems, Geneva, which will even run on a 0.5MByte machine, is a serious contender. Supplying a replacement version of the ST's AES (Application Environment Services), which controls your ST's windows, dialog boxes and menus, it doesn't replace the part of GEM that displays the Desktop icons you are used to. Geneva runs both GEM programs and those that are MultiTOS compatible, which enables most TOS programs to be run and allows up to 256 GEM windows open at once. If you use an incompatible program, you can simply exit Geneva and return to the ST's standard GEM desktop, and load the program there. To use Geneva effectively, at least 1MByte is required, while alternative desktops such as *Neodesk* can again be used. Geneva is so good that rather than crashing it at least gives you an error notice first.

Geneva
- **AVAILABLE FROM:** Compo Software ☎ 0487 3582
- **PRICE: £59**

93

GRAPHICS AND DISPLAYS

Your ST or Falcon is useless without a monitor. Televisions were never designed to display your ST's output and, while they may give passable results for games software, for serious applications like art, DTP or WP work you really need a proper monitor. We ran a big feature on monitors in *STF* 37, but since then much has changed, and many excellent units have been discontinued. Look out for second-hand ones in your local newspaper small ads (for tips see page 34). You might even spot an old Atari mono SM124 or SM125 monitor going cheap – these are great for serious apps.

In with the new

ST owners have to rely on the nearest equivalent monitor from non-Atari sources, which have certain drawbacks. Because they weren't primarily designed to be used this way, some lack sound output and need an add-on unit to provide noise. Check the correct cable and/or interface is supplied, as PC monitors often have the wrong connections. Tell the dealer what ST you have before you buy, and make sure the monitor offered is guaranteed compatible with it.

Microvitec 1438 Multisync

Multisync monitors can be plugged into virtually any computer because they're designed to accept a wide range of outputs. This particular model can display your ST's high, medium and low res programs, but you need the ST Multisync Switchbox to switch between them (£19.99, also from Ladbroke). It also works with a Falcon in all its video modes. Compact and affordable.

Microvitec 1438 Multisync
- **AVAILABLE FROM:** Ladbroke Computing ☎ 0772 203166
- **PRICE:** £289.99 (Switcher £19.99)

Dataview 28 SVGA

SVGA monitors provide pleasing displays: detailed and colourful. Depending on what adaptor you buy with it, you can use this monitor with your ST/E and even the Falcon, and the various cables cost between £10 and £20 each. Should you wish to stoop that low, you can use it with any PC too. Although expensive, it's worth it if you want colour SVGA for your ST, and if you upgrade to a Falcon you can still use it with that.

Dataview 28 SVGA
- **AVAILABLE FROM:** Ladbroke Computing ☎ 0772 203166
- **PRICE:** £239.99 (cable extra)

Dataview Mono

Ladbroke Computing have taken a mono PC monitor and adapted it fairly successfully for STs. Although the display is off-white rather than paper-white, it gives a clear, flat, steady picture for all high-res programs. With a 14-inch screen it has a larger image than Atari's old monitors, and comes on a tilt-and-turn stand. Sound output comes from a small interface, and although not loud it's good enough to hear the keyclicks. Ladbroke can supply add-on speakers.

Dataview Mono
- **AVAILABLE FROM:** Ladbroke Computing ☎ 0772 203166
- **PRICE:** £109.99

76

Viewtek Greyscale

Here's a novelty: a monitor for ST medium and low res software that displays in black and white and unlimited shades of grey. This low-cost solution comes with a choice of interface, so you can plug it into your ST or STE. The 12-inch screen provides a steady picture, and built-in stereo speakers provide sound output. A tilt-and-turn stand costs an extra £15.99. A mono emulator program enables you to run high-res ST programs.

Viewtek Greyscale
- **AVAILABLE FROM:** Silica Systems ☎ 081 309 1111
- **PRICE:** £69

75

GRAPHICS CARDS

Graphics cards are used to increase the resolution or the available palette of your ST, or both. There are two graphics cards around for your ST at the moment: a high-resolution mono card and a colour card enabling you to upgrade your MegaST or MegaSTE to 24-bit graphics with a palette of 16.7 million colours – 16,777,216 of them to be precise.

Graphics cards are an expensive option, but the results you see on screen are worth the high initial outlay. Graphics cards are usually designed for the MegaST or the MegaSTE, with adaptors available for the standard STE. The STFM currently has no cards available for it.

Reflex Graphics Card
- **AVAILABLE FROM:** Titan Designs ☎ 021 414 1630
- **PRICE:** £199 (STE adaptor £25)

90

Reflex Graphics Card

Titan Designs' Reflex Graphics Card has been around for quite a while now, but it's still the only real contender if you want to connect your MegaST or STE (with adaptor) to a large-screen A3 or A4 monitor.

The card is a high-resolution-only device and enables you to see more of the document on screen when you are using DTP programs like *Calamus S or* powerful document processors like *Papyrus Gold*. A great advantage of the Reflex system is that it increases the resolution on a standard Atari mono monitor, so you don't have to buy a large-screen monitor to use it.

The board simply plugs into the MegaST's expansion slot, while an adaptor that plugs into the STE enables you to plug in the Reflex card in the same way – providing a MegaST expansion slot for your STE. We showed you how to install the Reflex card back in *ST FORMAT* 45. This is a great card that thoroughly deserves its *ST FORMAT* Gold rating.

■ To add real colour power to your machine get a graphics card.

Nova Graphics Card

A colour card enables you to enter the world of high-quality 24-bit graphics on your MegaSTE, turning it into a professional standard graphics workstation. There's plenty of software you can use with the colour cards including *Xenomorf 2, Prism Paint 2, DA's Vector, DA's Layout, DA's Picture* and *Chagall*.

The Nova card is available in MegaSTE and MegaST configs and plugs into the respective slots. There is an STE adaptor "on the way" – no definite release date yet. The Nova is an expensive board, but then 24-bit graphics are an expensive option. See the full review on page 50.

Nova Graphics Card
- **AVAILABLE FROM:** 16/32 Systems ☎ 0634 710788
- **PRICE:** £419

90

■ Graphics cards may be a little pricey but the benefits are huge.

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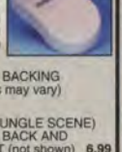

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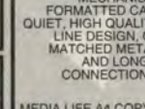

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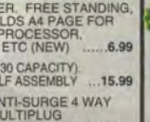

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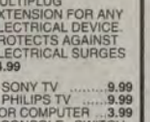

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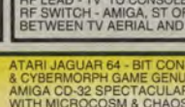

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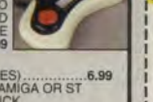

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ALTERNATIVE DEVICES

Your ST is a great computer but it has the undeserved reputation of being a games machine. Although you can play games with it – and some damn good ones too – it is designed to be a professional working computer.

However, the design of the standard STFM/STE has done nothing to enhance the ST's prospects as a serious contender in the business world. Where are the expansion slots for graphics cards, internal hard drives, networking boards, video cards and all the other paraphernalia? Sure, there's the MegaST and MegaSTE with their single slots, but how many people actually have one of these expandable STs? Less than 2 per cent in the UK, that's how many. What's needed is a way of getting your ST out of its case and into a more expandable and professional unit. Just take a look at these two options.

Lighthouse Tower

This is the first and, arguably, the best alternative case for your STFM, STE or MegaST. The Lighthouse Tower is a massive design, which stands on the floor with room inside for any peripheral or add-on you care to think of. The Tower comes in a variety of configurations with various add-on boards enabling you to upgrade your ST so that it's almost unrecognisable – PC owners are amazed when you tell them there's an ST lurking inside the case.

The Lighthouse Tower is a complex beast to build. You have to strip down your ST and remount all the components in the new case – a daunting task that we demonstrated to perfection in our DIY upgrade feature in *ST FORMAT* 52. The amount of gear you can install inside is incredible – this is a serious kit for your ST.

Lighthouse Tower
- **AVAILABLE FROM:** System Solutions
- ☎ 0753 832212
- **PRICE:** £200

Desk Topper

This a less expensive option than the Tower. Simply remove the top half of your ST's case and re-site it in the base of the Desk Topper. You can remount the floppy drive in the front of the case and there's plenty of room inside for hard drives and other upgrades. Then your monitor sits on top and the keyboard is remounted in separate case. See the full review in next month's issue of *ST FORMAT*.

Desk Topper
- **AVAILABLE FROM:** System Solutions
- ☎ 0753 832212
- **PRICE:** £100 approx

INPUT DEVICES

You've speeded your machine up, increased its storage capacity, you've given it a graphics card to die for, and you've put it in a big enough box to signify its power. In hot rod terms, it's time to add the furry dice (no!). Yes.

Due to the nature of the stuff featured here, you won't have any problems fitting parts or getting things to work. Occasionally, something comes along that isn't Atari-compatible, but you can pick up a conversion cable for a couple of quid at any electronics shop. Read on, then, knowing that plugging something in is as complicated as it gets.

TKB-MT-A Trackball

You can think of a trackball as an upturned mouse, except that instead of pushing the box around you move the ball with your hand, the box staying perfectly still on the table. The only real problem trackballs have is that clicking on something and dragging it elsewhere is a problem, as you're moving the ball while holding down the button. To solve this problem, Alfa Data (the manufacturers) have added a third button, that will act as the left button but will stay depressed (sob).

Gasteiner Mice
- **AVAILABLE FROM:** Gasteiner
- ☎ 081 345 6000
- **PRICE:** £6.99 and £14.99

85

Gasteiner Mice

It may seem strange at first, but Gasteiner market two different mice for a reason – the more you pay, the more sensitive your mouse is to movement. Though it is more expensive, the £15 model senses 400 DPI (units of movement per inch), whereas the £7 model only works with 280 DPI

This means that if you're happy to shell out £8 more then you'll get a mouse that's not only well designed, small (but perfectly formed), and with the buttons in the right places, but sensitive enough for any ST application.

TKB-MT-A-Trackball
- **AVAILABLE FROM:** Gasteiner
- ☎ 081 345 6000
- **PRICE:** £29.90

80

Alfa Data Real-Time Clock

An utterly groovy little ST-specific add-on that'll keep time while your ST is turned off, enabling it to keep an accurate clock at all times. A real-time clock, then, is an essential piece of kit for anyone wanting to time anything else from their ST (bulletin boards, logs, that sort of thing). Coming with its own software, it has to be one of the best alarm clocks around – after all, it'll have an ST strapped on to the back.

Optical Pen Mouse

For those of you who are far too arty to use a mouse, the Optical Pen Mouse works as a pen that can be run over a patterned board, and detects its movements in the same way as a mouse. The only real drawback with this model is that the tip is square, making the whole thing a little uncomfortable to use. Apart from that, it makes the perfect alternative for free-hand art work where mice fear to tread (damned awkward things).

Alfa Data Real-Time Clock
- **FROM:** Gasteiner
- ☎ 081 345 6000
- **PRICE:** £11.99

75

Auto Mouse/ Joystick Switch

This toggles control between a joystick or mouse when <Fire> is pressed on either one. If you're a fan of two-joystick games, this saves all that torturous plug swapping, carrying out the whole operation fully automatically.

Auto Mouse/ Joystick Switch
- **FROM:** Gasteiner
- ☎ 081 345 6000
- **PRICE:** £9.99

89

Optical Pen Mouse
- **AVAILABLE FROM:** Guess who
- ☎ 081 345 6000
- **PRICE:** £29.95

65

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DA's Vector Pro
ST Format Gold Award 90%
"A richly featured GEM-Based program which offers impressive graphic design facilities..."

DA's Picture
ST Format Gold Award 91%
"DA's Picture is flexible, very powerful and for the most part, mercifully easy to use."

Chagall
ST Format Gold Award 94%
"Chagall is fast, powerful and generates brilliant results."

Quill
STF Rating 84%
"A new easy to use freehand drawing program that's as versatile as pen and ink...absolutely brilliant."

InShape
STF Rating 85%
"InShape is designed to perfection...and is, without doubt, the best 3D modeller and animation program we've seen yet for the Falcon."

Digit Sound Tracker
ST Format Gold Award 91%
"Digit is a polished piece of software...capable of bringing the musician out in almost anyone."

Music Mon 2
STF Rating 79%
"If you are serious about your chip music then Music Mon 2 is well worth a look."

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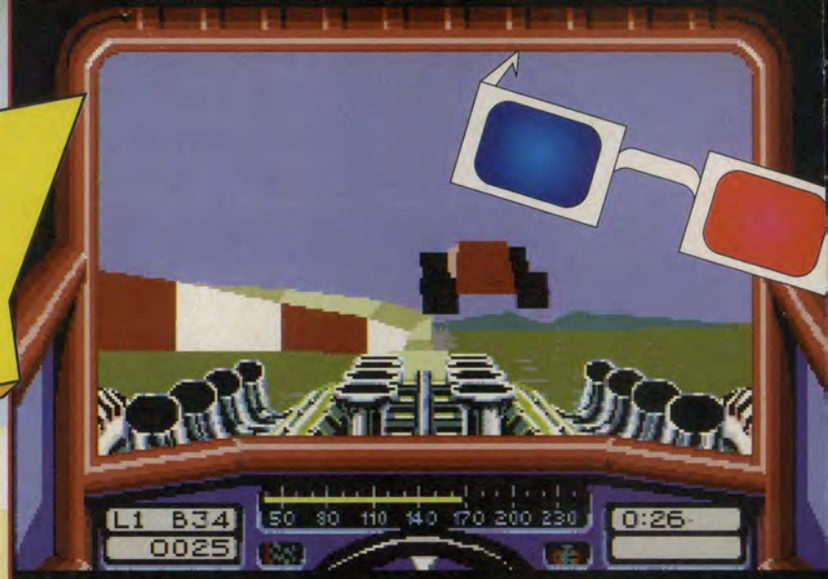
3DIY

Three people know the answer to the 3D question. One is mad, one is dead and Simon Forrester knows - but he's forgotten. Or has he?



■ *Stunt Car Racer* - if you've ever needed an excuse to write a 3D game, link up two STs and play this for a while - you'll never stop. Written by Geoff Crammond several years ago, the game rightfully took the world by storm.

Slowly, you sneak forward, inching your way to a clear line of fire. Luckily, the fighter with more guns than a South American border patrol is facing the other way – so you actually stand a chance of beating the thing. As your finger slides over the trigger a shaft of laser fire erupts from the belly of your craft. Your opponent turns and fires back, as three missiles clear their housing and scream towards him. You can sit back now, and watch him try to outrun a deadly tracking missile. Boom!

Anyone who's played any 3D game knows the feeling. There's no more flat gaming – suddenly you're transported into the 3D world of the computer game, where you can hide, outrun, surprise and destroy your opponent in a 3D environment. And everyone wants to be a top games programmer, don't they? Everybody would like the feeling of seeing their game get good reviews and high ratings, and a 3D game is a damned good way of going about it. Over the next few pages you'll learn everything there is to know about creating and animating your own 3D images. Almost.

You're transported into the 3D world of the computer game, where you can hide, outrun, and destroy your opponent

The language we're going to use is largely irrelevant here. You'll need a compiled language of some sort, if not assembly itself. However, anyone thinking "that's OK, I'll use BASIC" is going to be very disappointed with the speed of their finished work – you could create 3D images in the language, but without a damned good compiler it'll just be far too slow to animate in any game. Sorry about that.

Faith can draw mountains as well...

We're going to start with the bare bones of a 3D game, a flight sim. Our game environment will be simple for now, as we only need to draw a few things to get the hang of the system. We'll start with a mountain, representing it somehow in data form (after all, telling a computer to just "draw a mountain" isn't really going to cut it).

Before we go any further, we're going to need to reduce our mountain down to a set of shapes we can draw quickly and easily on screen. The easiest way to look at anything is as a set of 2D polygons: geometric shapes with any number of sides. For a clearer idea of exactly what this will look like, *Cybermorph* features a landscape drawn with the same technique, only using filled polygons (a concept we'll explore later on).

For now, we'll simply store these polygons in the form of x, y and z co-ordinates for each point (node) of the shape. For instance, a triangle would consist of three sets of three co-ordinates, as there are three nodes each with a position in 3D space. Mountains, being utterly still for the most part, don't need to be considered as free moving objects, and so can simply be stored as a set of 'dead' shapes.

FAKE METHODS

I know what you're thinking - this is a 3D feature, and we've utterly failed to cover the hundreds of isometric and driving games, not to mention the many Dungeon Master style games. This is quite simply because they're all cheats.

Before we look at exactly how each type of game works, we have to understand that whereas our 3D game uses lines drawn freely on screen, each game mentioned below uses sprites written onto screen as bitmap images.

■ *Escape From The Planet Of The Robot Monsters* - an example of isometric games at their very best.

Isometric games. Everybody's seen isometric games, and if you managed to avoid the hype surrounding *Head Over Heels*, *Batman*, *Cadaver* and *Escape From The Planet Of The Robot Monsters*, you must have been living on Mars since the ST hit the streets. The system is known as isometric because each block in our cubic world is drawn with 30° and vertical lines. This is not true 3D because you can't view our game world from any angle – only from four directions, in 90° steps.

■ *Lotus Turbo Esprit* - there are several different ways to create a fake 3D game, and this has got to be by far the sneakiest.

Driving games. These are the masters of deception – they cheat in ways never before conceived by man or machine. As with skydiving, the only thing you really have to worry about is the ground. Once we've got the ground to move the way we want it to, everything else is easy. If you look at any racing

Failing that, *The Day The Earth Stopped Standing Still* would be a good excuse to throw a mountain at someone, a feeling equal to playing *Frontier* and trying desperately to outrun a planet.

Things that go bump in the flight

The problems with this system start when we have an environment in which other objects move of their own accord, not staying as conveniently static as a mountain ("That hill, Jeff – I could swear I saw it... naah"). In our game, we'll need some enemy planes to shoot down, but if these planes are to move they'll need polygon co-ordinates that can be easily changed. Our mountain isn't going anywhere, but a plane's going to either move or be utterly pointless.

There is a very simple way around the problem of other moving objects, though – their co-ordinates can be calculated in relation to the object itself rather than in relation to a fixed point (0,0,0) in the game world. This means that the plane's position values are added to the plane's polygon co-ordinates, and the result is the polygon's position in 3D space. If the object rotates, the co-ordinates will quite obviously change, but spinning an object is just a matter of sine and cosine calculations, which can be done easily in the same way a circle is drawn. Geometry is a fairly simple concept once you understand it (!?!), but it'll be explained elsewhere, as I'd hate to go off on a tangent (bom bom).

■ *Driller* - Incentive took the computing world by storm by pioneering *Freescape*, the first use of filled 3D exploration on a big scale. The later release of the *3D Construction Kit* only served to increase the popularity of the system.

Spinning an object is just a matter of sine and cosine calculations, which can be done easily

By way of an example

Let's take a look at what we've got so far, starting in 2D space (we'll add the third dimension later). We've already plotted our mountain, but we need a moving object. For simplicity's sake our enemy craft will be just one triangle for now. If we take the centre of the shape as our origin, then the co-ordinates for the nodes would be something like (0,100), (-75,-100) and (75,-100). If our triangle has rotated clockwise by 10°, then we simply multiply our x value by sin(10) and our y value by cos(10). Our triangle's position in space will be (4000,3000), so we simply add those values to our existing co-ordinates and lo, we've mapped our triangle at a somewhat strange angle in the full game world.

For the third dimension (we had to come to that), we need to add

IMAGE TYPES

Those just getting used to the world of video games may benefit from a quick overview of visual systems. You see, displaying our 3D ship flying through space is a world apart (maths-wise) from displaying the 2D ships used in the more standard scrolling shoot-'em-up.

When we talk about sprites, we're actually talking about little pictures (like art package files), which we can freely move around the screen, passing over or under other images. These sprites are the basis of 80 per cent of games you'll see today. Occasionally you'll hear sprites referred to as bitmap images, as indeed they are – they're made up of pixels, each dot having its own colour, which is mapped into the bits of a byte.

As far as we're concerned, sprites and bitmapped images are largely irrelevant – our display system starts with a blank screen, on to which we eventually draw lines, having the freedom to draw on any part of the screen and build up our images that way. The easy way to look at the difference between the two systems is that the vector system works in freely drawn lines, whereas a sprite is a rigid picture that cannot be altered, only moved. So, whereas with a 3D vector system you could view a ship from any distance or angle, a sprite system would require every possible view of an object to be stored as pictures beforehand. That's a lot of images.

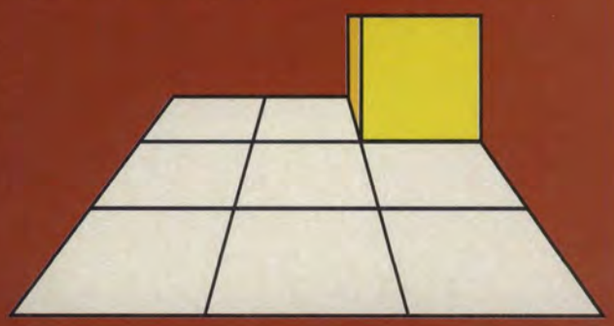
■ Spot the difference. The invader is a bitmap image made of pixels, while the wavy lines are theoretical, being smooth from any distance.

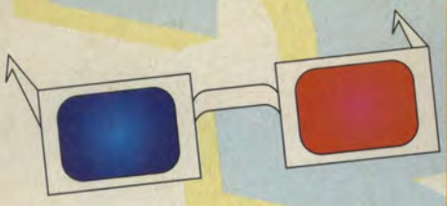
game, you'll notice that very little of the track is visible at any one time. You'll also notice that the only things in the picture giving the impression of 3D are two red and white stripes and a few black and grey trapezia. The cars on the road are simply sprites overlaid on to this background. This doesn't make driving games invalid, it just means they fall outside the category of true 3D, because the entire system is too restrictive.

Dungeon Master. This technique is the closest to our normal 3D drawing system, but with *Dungeon Master* the component parts of the image have been drawn and stored beforehand. If we look at the way the map is laid out, everything works in squares, representing walls and passages of equal thickness. All we have to do is draw a block in each square location, making sure they link together aesthetically, and save each one as a sprite. This way we can build up a complete and seemingly texture mapped image from just a few sprites, dropping in walls where they're needed.

■ *Bloodwych* - a game relying on pre-defined blocks in pre-defined positions to give the impression of calculated texture mapping. Still a damned good game, though.

■ Compare and contrast - that pre-defined block in its pre-defined position, forming part of the final image. You can clearly see the easy way in which we could add more blocks to the picture.





a third value to each node and the overall position of the triangle, and two more rotation values (like our 10°) to enable our craft to rotate on all three axis. The sine and cosine calculations are only a little more complicated, now calculating each node value with three different angles affecting it as opposed to two.

And lo and behold, our triangle is now freely gliding through theoretical space. To change its position we simply have to alter three values (x, y, and z), while if we want to tilt the triangle in any way we simply have to alter the three rotational values (a different x, y and z, measured in degrees this time).

Bear in mind that we only added our third dimension afterwards as an aid to understanding, and that in reality we have to consider all three with any calculations we make, from enemy planes to hills (alive, with the sound of music).

■ Raytracing - a technique that can turn any old 3D model into a wonderful image.

Pencils at the ready

Less of the maths – it's about time we got around to drawing these things on screen really, isn't it? This is where things begin to get tricky, because although we've already calculated everything in terms of polygons in 3D space, we've now got to draw them. Eek.

Step one is to create a map of everything that'll appear on screen in a 2D sense. This means pasting our objects (enemy ships, that sort of thing) into our model world (above our landscape), converting the three co-ordinates into two. This is achieved by applying any rotation or angles to our polygons, then converting the whole thing into 2D, being a flat set of points displaying the craft as it would appear from our viewing angle. This means that the polygons originally making up the craft will be distorted into what they look like from our angle as opposed to their actual shape. Remember at this point that everything must be rotated and pasted from our viewing angle – the z axis no longer refers to the depth of an object, but becomes a straight line extending forwards from the observer. Similarly, the x axis becomes a horizon line and the y axis leads straight up.

Lo and behold, our triangle is now freely gliding through theoretical space

Now it's time to add depth. You may think that's what we've been doing all along, but if we ran things as they were now, you'd never know how far away something was – things need to get smaller as they get further away. This is achieved by reducing the size of the x and y axes as the z axis increases. This will shrink objects as they get further away, giving the viewer an impression of depth and distance.

Next, we have to calculate which planes are hidden from view. There are several different ways to do this, the simplest being to make sure the nodes of a shape travel around that shape in one direction. If, when we come to draw that shape, the nodes go anti-clockwise instead of clockwise, there's no need to display the polygon, as it has its back to us – a well-designed object should have all of its planes facing out, with the backs of polygons being hidden inside the object.

Finally we have to employ a proper clipping technique. Clipping is

CAD

It's not a game design, a software house or a hot new console machine. CAD is in fact an acronym for Computer Aided Design, a system used by technical manufacturers for component design right through to vehicle aerodynamics.

The techniques used by CAD packages are similar if not identical to our system, though they deal totally in wireframed images, which are slightly different when it comes to storing the original object data. The point is that CAD shows us a use of the same techniques as we use in 3D game creation, but for a totally different and far more practical purpose.

RAYTRACING

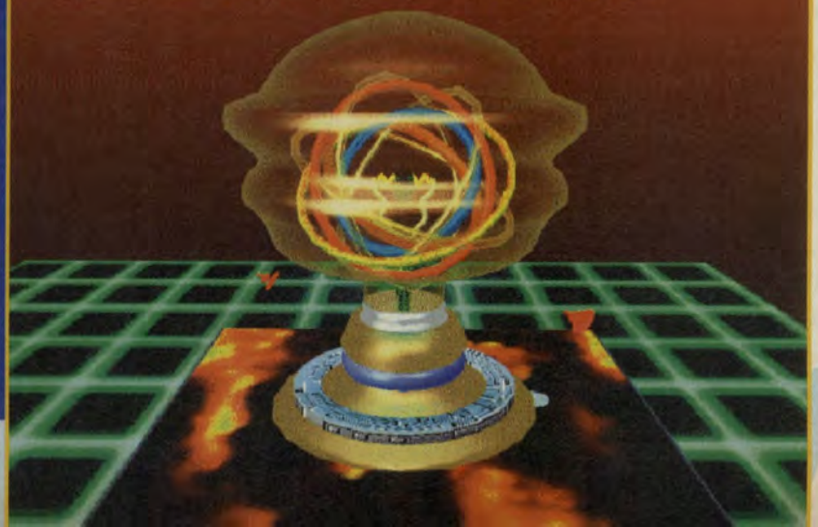
Although you'll no doubt have heard the term used excessively when game producers and computer journos talk about forthcoming releases, raytracing has little or nothing to do with computer games. The term refers to the action of bouncing logical light particles around a 3D modelled environment to calculate exactly how the scene would look if real.

Let's take a chequered floor and some metallic spheres – the standard raytraced image that everyone knows. If you look at a sphere, you can not only see that part of it is cast in shadow (as it should be) but that it reflects the floor's chequered pattern in the way a sphere should.

As far as the creation of beautiful 3D images is concerned, raytracing is a godsend to anyone wanting their work to look a little more special, but the calculations required to draw just one frame can take anything up to a day. Which isn't much help as far as our 3D game is concerned then, is it?

However, all is not lost. Light-source shading is used in many games (and elsewhere in this feature) as a quick alternative, but raytracing is currently a technique used to make your 3D-rendered sprites look more appetising.

■ More raytracing. With just a little software magic you can produce some stunning effects. It's only a pity it can't be done within games along with the rest of our calculations - the programmer who manages that will be rich.



3DIY

simply the process of removing unwanted lines from our drawing, making sure objects aren't see-through – if a craft flies past a mountain, we don't want to be able to see that mountain through the craft.

With filled polygons, we don't have to worry too much – because our shapes are filled they'll wipe out objects underneath them. With a line drawing (we'll get on to fills later) things get a little more complex, as we no longer have the luxury of polygons obscuring others. The easy way to accomplish clipping with a wire-framed image is to build up our world starting at the front. As we work back displaying the polygons, we simply have to make sure we never draw a line over an existing polygon. This is fairly easy to do mathematically, as we can just note the areas of the screen already containing polygons, and make sure any new lines we draw never cross into any protected area of the screen.

At this point, you've got a graphic system comparable to David Braben's original 8-bit wireframe *Elite*, an impressive achievement by anyone's standards. What next, though?

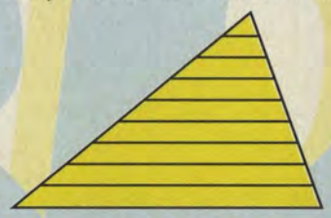
Filled vectors

You may have guessed that filling vectors is not exactly such a giant leap forward. In fact, the only reason it wasn't used at an earlier point in 3D history was that fill routines are always uselessly slow. The problem isn't with throwing huge amounts of colour on to the screen, but with working out exactly where our blocks of colour have to stop, because it's the process detecting for the edges of a shape that slows the process down.

The advantage we have here is that we know the exact dimensions of our areas to be filled, and as long as we're happy to display the odd polygon and overlap another one afterwards, we should have absolutely no trouble.

Light-source shading is vaguely similar to raytracing, but it's possible to calculate in real time

The easy way to quickly fill a triangle is to draw it as a solid object anyway, casting aside our line drawings. This is achieved with a line advancing across the shape, starting at the lowest node and travelling up over the entire surface. This is only one way of quickly filling, but once up to speed it can produce some fast results. Whatever you decide to do here, bear in mind that drawing your image and then using a fill outline on the final line image is not going to help your cause – you'll get about one frame every five seconds, everyone will hate you, and you'll die unloved. Don't say you weren't warned.



■ The easy way to fill a triangle – draw it from completely solid lines.

Light sources

In a little while we'll come to texture mapping, a way of making your graphics looking a little more impressive. It is a complex procedure though, and there are easier ways to smarten up your graphics, especially with a view to animation. The most widely-used method is light-source shading.

This technique is vaguely similar to raytracing, but its nature makes it possible to calculate in real time. Instead of tracing beams of light around a 3D modelled universe, we simply work out the angle of the plane we're filling in relation to the light source (a sun, for example), and make the colour of that plane lighter or darker to correspond with its angle. That's all there is to light-sourced shading, although it's a technique that can add valuable polish to your final image. Just take a look at *Cybermorph* for an example.

One thing to remember about light sourcing in this way is that the light is an absolute. If we can see our own craft when we rotate it, we'll see the effects of light sourcing on that craft. We're not holding a torch, we're moving about underneath a sun with a constant position.

Depth cues

One of the tricks humans are said to use for 3D perceptual ability is an understanding of depth cue. In psychological terms, a cue is simply a clue (psychologists can't spell, you see). Depth cues, then, are simply the parts of an image that give away depth, the first being visibility.

Though this may not seem instantly apparent, the further away objects get the dimmer they become. An object on the horizon is really only a silhouette, as things only gain light colours when they get close. The easiest way to add depth cues to an image, then, is to shade objects darker as they get further away. This

VIRTUAL REALITY

Anyone following the mainstream computer press over the past few years will definitely know what an exciting prospect VR was (a past tense, as the entertainment industry is busily chasing other fads now). If you were in awe of just what VR developers were managing to do with technology, don't bother – it's just a version of normal 3D drawing, but in stereo, and piped through an expensive headset after some poor kid has ladled twenty pound coins into a slot.

In fact, the only thing to improve in any major way was processing speed, VR requiring a lot of calculations to run fast enough to look even vaguely 'realistic', or update fast enough to be tolerable. But that's it – nothing else changes.

One point, though – why isn't VR texture mapped? For some reason, although the technology and processor power is readily available, no one has seen fit to wrap bitmapped images on to polygons, making the entire view look less like a computer game and more like a virtual world. If you've any idea why this should ever be so, we'll take answers on a postcard to the usual address.

TWO PLAYERS

You may think that a two-player feature is a relatively small addition to game design as far as ground-breaking concepts are concerned, but this definitely not the case. In fact, when programmers discovered the two computer link-up, 3D game found a whole new lease of life.

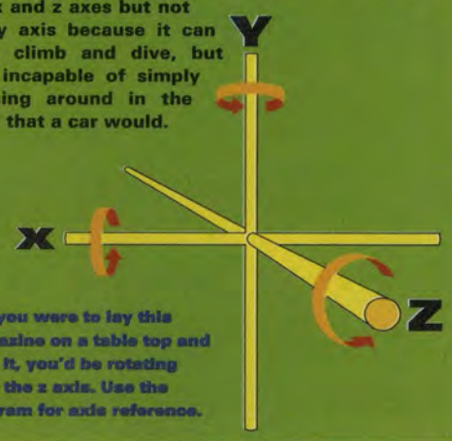
For the first time, you could actually interact with someone else in a 3D environment on screen, their movements causing movements in the new virtual world. For the first time you could look at another player on your screen, then look through their screen and see yourself still moving as you'd expect to. *Falcon* and *Stunt Car Racer* are two classic examples. Both can be linked by null modem cable, and both are brilliant fun. Of course, there have been a few split-screen two-player 3D games programmed, but these have never really had the same attraction unless the players were willing to co-operate every step of the way.

So, if you need any kind of justification for writing a 3D game, the fact that you can create one of the most addictive and atmospheric two-player games ever should be reason enough – but you're going to have to beat *Stunt Car Racer!* It's something to aim for...

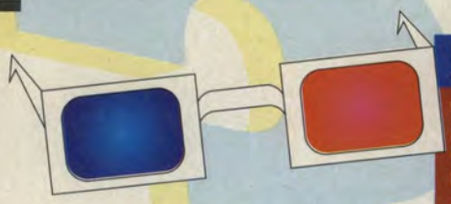
3D SPACE

Throughout this entire feature, you'll have heard a lot of geometric phrases referring the 3D space and the way we look at it. For the purposes of this feature, then, it's time to take a quick look at how the terms all fit together.

The diagram is simple enough – a polygon in 3D space. As you can see, there are three lines intersecting it from different angles. These are our dimensions: x (width), y (height), and z (depth). Here we have a way of measuring three dimensions, as we have axes (the plural of axis, would you believe) to place co-ordinate scales along. The only thing left is rotation, which we measure simply as rotation around a particular axis, enabling us to move our object in absolutely any dimension, and spin it. Let's take a 3D rectangle, and call it a car (maybe a Trabant). If we view the car travelling away from us, it can rotate only on its y axis. This is because it's designed only to travel on flat land. If our brick was a normal plane, it could rotate on its x and z axes but not its y axis because it can roll, climb and dive, but it's incapable of simply turning around in the way that a car would.



■ If you were to lay this magazine on a table top and spin it, you'd be rotating it on the z axis. Use the diagram for axis reference.



is a simple calculation, relying on calculating the shade of a polygon with respect to its position on the z axis.

This system will only really fail when you're looking at one huge polygon stretching off into the distance (EEC warning – calculating a graduated fill with respect to depth can cause heart trouble and stress). However, the only object in our game that's big enough to do this is the ground, which will be made up of several polygons anyway, each of which will be individually cued. So, no problem.

Texture mapping

That's it, then. We've taken our mountain and drawn it, we've calculated freely moving objects and superimposed them into our 3D world, and drawn everything up quickly and easily. Not stopping there, we've even filled in our polygons, turning a previously wireframe image into a solid world. Some people won't be satisfied to stop there, though. Some people will want to use bitmap images to decorate their craft, *Frontier* style.

Texture mapping (it may not be the exact term, but it's the one we're using) is actually quite a simple process. If we start with the information relating to the angle the polygon is viewed from, warping an image to fit that polygon is a simple task, requiring only basic image processing routines. Let's take a look at how this works in diagram form. The system works by assuming first of all that the polygon has its flat surface towards us. For the sake of explanation I've added a full rectangle enclosing the shape, mainly to demonstrate exactly how the image is distorted. As you can see, all we have to do is rotate our image in 3D along with the polygon – an easy task with the right algorithm and a bit of programming know-how.

Within the simple framework we've provided there are thousands of games you can produce

That's it, then

So there we have it – the bare bones of a 3D game. Within the simple framework we've provided there are thousands of different games you can produce – from flight sims through arcade adventures to a classic virtual beat-'em-up.

Of course, there are many things that we haven't given you here – we could provide you with the maths, equations and algorithms for the entire operation, but that would make it *STF's* game instead of yours.

All you really have to do now (apart from write an entire 3D handling system) is come up with a suitable justification for a 3D game. Using what you've learnt you can cover any subject you like, as if it exists in 3D, we can draw it (or at least represent it).

We're looking forward to seeing what you can produce with this new skill of yours, but if anyone releases *The Hill From Hell* I'll sue for copyright. It's a tough world, from your aspect at least. ***stf***

3D CONSTRUCTION KIT

Why are we telling you all of this? For quite a lot of people, the easiest option for creating 3D games would be *3D Construction Kit*, a package created by Incentive as a follow-up to their successful *Freescape* game series.

The kit comes complete with an instructional video, taking you through the landscape editor on which you build your virtual world, as well as the mini-programming language that you can use to create your front end and give qualities to objects.

Since its launch, *3D Construction Kit* has been responsible for a flood of 3D games in the PD and Shareware markets, all of which, whether designed well or not from a gaming point of view, are highly polished. If your graphics routines have already been written by a company responsible for some of the most highly acclaimed games around, you can give your full attention to gameplay.

In fact, there are only a few problems with the package, the biggest one being that *3DCK* is a construction kit for normal *Freescape* games, and probably wouldn't handle anything that strayed too far from the standard *Freescape* game style – you wouldn't have much luck designing a flight sim or anything else that has to move quickly.

Therefore, for our flight sim purposes, *3DCK* isn't really a viable option. We'd be better off sticking with wire-frame images and fast-filled polygons instead of restricting ourselves to someone else's development system.

■ Texture mapping is simple once you get the hang of it. Remember to rotate the image with the polygon, though. If the texture doesn't distort along with the face of the polygon it's pasted to, things will look very odd indeed.

CIRCLE MATHS

You've read this feature, you've largely understood the concepts and principles behind drawing 3D, but it's been a while since you did any trigonometry, hasn't it? For all those who just didn't pay any attention at school at all, we'll go through a quick trigonometry lesson – particularly you boys at the back there!

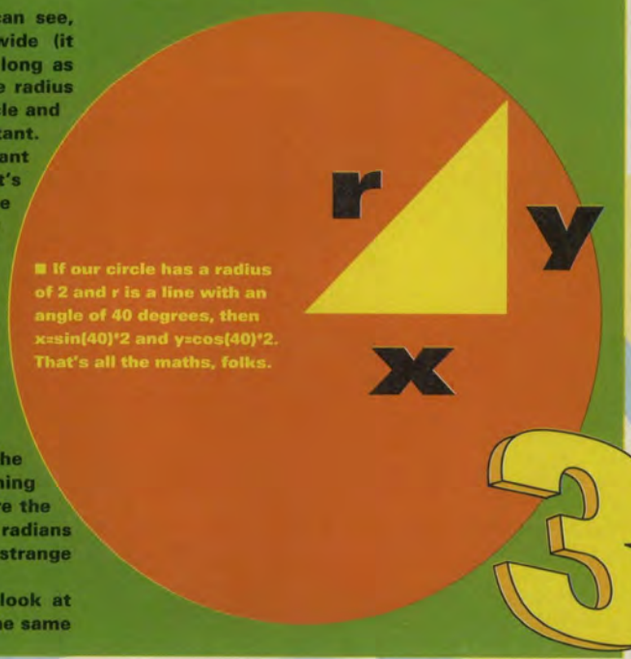
Take a look at the diagram. As you can see, we're working with a circle one unit wide (it doesn't really matter what the unit is, as long as it's a unit of some sort). Being a circle, the radius (the distance between the centre of the circle and the nearest point in the perimeter) is constant. We can see this radius line as any line we want to calculate the angle and position of. Let's say for example we want to work with a line at 60 per cent (east by northeast). The only skill we have to master is calculating the co-ordinates of the other end of the line. This is fantastically simple, requiring some straightforward equations. In these calculations, the start of the line (at the centre of the circle) will be (0,0), and the end will be (x,y), where:

x=sin(60)*1

y=cos(60)*1

The 60 relates to the angle of the line, and the 1 relates to the line length. If you're performing these calculations on a computer, make sure the trig mode is set to degrees as opposed to radians or gradients, or you'll get some very strange results indeed.

Anyway, to take this further, we can look at this whole calculation as a triangle, using the same values. If you're following this feature as gentle reading, you won't need to follow the precise maths, but if you're planning to write your own 3D game, you'll need to have a firm grasp of trigonometry. However, this brief explanation should be enough to get you through.



■ If our circle has a radius of 2 and r is a line with an angle of 40 degrees, then x=sin(40)*2 and y=cos(40)*2. That's all the maths, folks.

3DIY

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It must be pointed out that **SMS2** does not run GEM or TOS programs. It is a distinct and separate operating system which provides a powerful and yet flexible form of computing. There are already a number of commercial programs and a good range of PD software which is **available now and is SMS2 compatible.**

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A CLASSIFIED

Psst, wanna buy an ST but can't afford to pay full whack? Fancy a colour printer but feel faint when you hear the price they're asking? Step this way. Darren Smithson shows you all kinds of goodies to be had.

■ If you want to upgrade your ST there's no need to go straight to your local computer store. Check out the small ads and you may find a real bargain.

There is currently a thriving second-hand market for computers – including your humble old ST – and peripherals of all kinds, such as monitors, printers, modems, games and applications. The reasons for the growing trade in second-hand computers are vast and endless (mostly because of something called a recession), but don't look a gift horse in the mouth, eh? Get your dosh ready and...

...stop for a moment. Actually you should perhaps take a little peek into the horse's mouth. Before you send your cash off for anything, there are a few questions you should ask first, no matter whether you're buying an ST and/or a peripheral for the first time, as a replacement or even to use as spare parts.

PART ONE: GETTING AN ST CHEAP

Where are these magical places selling STs off cheap then? You might be surprised. The obvious places to start are in the classified pages of ST magazines, or computer magazines like *PC Mart, Micro Mart* and *Computer Shopper*. But don't discount local newspapers, free papers and general mart mags such as *Ad Mart, Exchange & Mart*. The odd ST, sometimes complete with disk drive and monitor, can show up, as well as loads of extras that your ST is able to utilise.

Local options also provide one major advantage over the others: all the equipment is based in your area, which means that you can actually ask to view what's on offer before handing over your money. They feature products that can enhance the practical use of your ST: for example, second-hand furniture such as tables, chairs, filing cabinets. They also usually cover goods that can take both you and your ST into new realms of possibilities: second-hand camcorders, VCRs, electronic keyboards and mixing desks.

Be careful as to your selection criteria. There are many different ST configurations available, and you should look to maximise your pound as much as possible. For example, always look for expanded STs. A 520STE just doesn't cut it any more, and even a 1040STE will find it a struggle to cope with today's applications and operating systems. Floppy disk drives, whether internal or a second external drive, should be double-sided (able to read and write to 720K). If

paper. Buyer collects £150 ono Gerry Samson, 8 Preston Road, Abingdon, OX14 5LB.
ATARI 520STFM 1MEG +BB Clock +S/W £125. Mono monitor £55. Atari Hard Drive (20 meg) £125. Caligrapher £30 CFA Basic 3 £20 Amos + Compiler £20. Andrew [illegible]
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THE BUYER'S CHECK-LIST

When you've scanned through numerous ads and found yourself what looks like a great bargain, the first step's to take a look at the kit. There are several very important questions you should ask the seller, and things to look out for.

The ST

1 Confirm all details. What kind of ST is it? How much memory does it have? Is the disk drive double-sided?

2 Confirm that the unit is in complete working order. If possible get a working demonstration. Pay particular note to the mouse and joystick ports, and the TV and monitor ports. If the seller has a printer – whether or not it's for sale – ask for a test of the printer port.

3 Ask general questions. Why is it being sold? Ask yourself whether or not you'll be selling it yourself one month later for the same reason.

4 Check the keyboard for dirt and especially for any signs of a spillage over it.

5 Check that the case screws are not too worn down. If they are, ask why (extra memory and a TOS upgrade may have been added over a period of time).

6 Find out when the unit was last used.

Peripherals

1 Are they compatible with the ST? How easy would it be to get the necessary drivers and interface parts?

2 If it's a hard drive, does it have bad sectors? If it's a modem, is it BABT approved?

3 Is that Yamaha keyboard that you want to use with your ST-based sound studio MIDI-compatible?

4 Is that printer a standard printer, such as a Hewlett Packard DeskJet/LaserJet or a Canon BJ10? It's more likely that Atari-based applications will support these industry standard products. If the printer isn't a Canon or HP, check to see if it can emulate them.

5 Ask the same questions as for the ST itself regarding working order of the peripherals.

6 How much would the unit cost if you were to buy it new with a guarantee?

floppies, Taxan 765, colour monitor and keyboard £185 ono. Bedford [illegible]
ATARI 520STE MOUSE, joystick, manual and software, good clean condition, must clear, best offer over £95 secures Tel: [illegible]
DELL 386SX16, 4meg RAM, 100meg hard disk, colour VGA monitor bargain £390. With 40 meg hard disk £350 ring [illegible]
AMSTRAD CPC 464 home computer with colour monitor. Joystick, 70+

BARGAIN

possible, look for STEs with TOS 2.06 upgrades, but always check whether or not the upgrade is switchable back to TOS 1.62 (or 1.06 depending on your TOS ID). This minimises software incompatibility. Anything less than TOS 1.62 should really be avoided as the early versions of TOS were frighteningly bug-ridden.

For the same reasons you should probably discount STFMs, unless you're looking for spare parts for your STFM that is. And earlier models of the ST should definitely be discounted. As your entry level ST you should go for a 1040STE. Far more modular in its design than its predecessors, the STE is easier and cheaper to upgrade. Also, more and more games and apps are being released that take advantage of the STE's enhanced capabilities (more even than when the STE was at the height of its production, in fact).

Having said that, if you require a little more power (say for CAD/CAM or extensive DTP work) and you spot a Mega STE or even the stunningly powerful TT going second-hand, do whatever you can to snap them up. You're not likely to see a Falcon going second-hand, though, although you'll see hundreds of Amiga 1200s. Nothing to do with the fact that the Falcon is a superb home multimedia/business computer, while the A1200 is just a glorified games machine, of course.

■ At the right price it can be worth buying a whole ST for one bit of kit.

Before you send your cash off for anything, there are a few questions you should ask first

How much should you pay for a second-hand ST? As a rough rule of thumb, for an STFM, with extras such as high-res monitor and disk drive, around £175 is the average asking price. The 1040STE averages out at £250 for a complete system, including high-resolution monitor and second disk drive – an excellent price as long as it's in good condition. A complete Mega STE, including hard drive (and it's almost pointless buying a Mega STE without one, unless it's for spares), bounces around the £550-£650 mark, whereas the TT could well reach the massive £850-£1,000 mark. It all comes down to exactly what you want to use your ST for, and, of course, how much money you have going spare.

■ Always check thoroughly that the kit you're buying actually works!

You're not limited to just buying the computer. Atari-specific scanners, hard drives, printers, genlocks and modems are all available. Even if you can't find an Atari MegaFile hard drive, many external PC hard drives and CD-ROM units can be tweaked to be ST-compatible, as can modems and some PC flatbed scanners. Remember though, you often have to buy extras (such as the ICD Link product for the drives), as well as locate the necessary drivers that tell a peripheral it's now connected to an Atari ST and not a PC any more. If you have any doubt as to whether you can get hold of these extras, or your own ability to get them working, then stick to Atari-specific products. This is particularly true of scanners.

It's difficult to over-stress the importance of looking for the most complete kit you can get your hands on when buying second-hand. A brand new 1040STE costs

AMSTRAD PCW 9256 computer Word Processor 512k ram, Locoscript 1,2, 3, Locospell, Locofile £450.00. Stroud [illegible]

ATARI-ST High Rez mono monitor £65. Hand scanner £45. X-Ram 2 meg memory upgrade kit £40. Vidi-ST digitiser £30, other Atari bits available. Telephone [illegible]

"ATARI ST for sale, plus joystick, disk drive, hundreds of disks, monitor. £300.

Call Ami Shaw on...

Having established where to look, and a rough guide to what you should be prepared to spend, you're now ready to go out and buy that STE aren't you? Well, no you're not quite. There are still a few questions you need to ask. Let's take a look at a standard classified ad for an ST (shown above):

Sounds great doesn't it? Except you don't know what ST it is, how much memory it has, what the TOS version is, what disk drive it has or whether the monitor is high-res or colour. If what we have here is a 1040STE with a second double-sided floppy disk drive and a colour monitor then £300 is a very good price. If the monitor is a high-res mono monitor, then the £300 asking price may be just a tad too high.

Another interesting thing about this advert is the mention of "hundreds of disks". Find out what's on these disks, and you could save yourself a small fortune in software. Second-hand software's covered in part two of the feature.

ATARI DON'T JUST DO STs...

Before the ST, Atari were ruling the world with their 8-bit video game systems, such as the 7800 and the 800XL. These are still going strong, costing as little as £35. There are no new games for these systems, but for a bit of nostalgia...

Look carefully and you'll also find the odd Atari Lynx for sale. Given that this handheld unit is generally acknowledged to be technically superior to other systems, and that there is renewed interest in the product thanks to the Jaguar (translation: there are lots of new games on the way), then this could be the bargain of the year. Look for prices around £100, so long as it comes with a good selection of games.

Don't forget, you may find a STACY or even an ST Book and/or ST PAD (if those products were ever released in the UK). If you're out and about a lot, a portable ST would be useful. Check to see which flavour STACY it is – the first generation had a short battery life.

Alternatively, pick up the DOS-based Atari Portfolio, a small handheld unit that's a better Psion organiser than, well, the Psion organiser. The Portfolio comes with DOS-based apps – you can import and export to your ST with the relevant cables and software.

SOFTWARE BARGAINS

Occasionally you'll find indispensable items for your ST, the most obvious example being a complete backlist of ST FORMAT along with original disks, of course.

So far, we've concentrated firmly on the hardware side of things, but there are some bargains to be had on the software front too. In terms of keeping their value, games and applications are no-hopers. Games quickly become last month's news, and applications are regularly updated as well as subject to drastic price reductions once a particular version has become established. However, when the main unit has been disabled, owners are often left with a wealth of applications and games, and for around £25 you can pick up a good dozen or so games, which should enough to get anyone started.

More importantly, applications also find their way on to the second-hand market, with expensive software often costing a fraction of the original RRP. Want a copy of *Cubase* or *Calamus SL* but find the RRP a little too bitter to swallow? Take a look in the classifieds.

However, buying software second-hand can be more hazardous than buying hardware. The two main things you should watch out for are virus-infected disks and pirated software. If someone is selling *Calamus 1.09a*, it may be because they've upgraded to *Calamus SL*. However, the seller must delete all other copies of *v1.09a* from his system before passing the licence on to you, otherwise you are guilty of taking a pirated copy from him.

You should also make sure you have a recent virus checker, such as *UVK*, and sweep all second-hand software before you use it. Land yourself with a virus like *Ghost* from a second-hand utility and you could easily infect all your other utility disks, so watch out.

Before you pay for a second-hand game or app, check the most recent price (just look at the adverts in *STF*). The game may now be on a budget label, or the application may have come down in price. Also, make sure that the application isn't too far removed from the current version. Happy shopping...

less than £200, and when bought from places such as Silica Systems (☎ 081 309 1111) you get all kinds of free games and applications, so buying a second-hand ST with few accessories for £150 seems a little unnecessary. Likewise, if you have an STFM – especially if you only have 1MByte or less of memory in your system – now's the time to buy up to the STE. Any extras you purchase (monitor, mouse, disk drive) can be used as spare parts for your existing equipment, which means that in the long run you still save yourself money. Remember, now that the ST/STE is effectively discontinued, spare parts will become increasingly rare and hence much more pricey.

■ Swedish masseur offers... ah, wrong kind of small ad!

PART TWO: UPGRADING YOUR ST FOR PEANUTS

It's all very well making sure the ST you buy is as complete as possible, but you shouldn't discount older or single systems entirely especially if you already own an ST. Spare parts for your ST are going to become increasingly scarce on the ground over the next couple of years, so a seller with a damaged or obsolete system is likely to leap at the chance to at least get some money back on the system.

For example, he may have an ST with damaged monitor ports, mouse and joystick ports, or perhaps a cracked casing or faulty motherboard. By offering to take the damaged unit off his hands for a token price you have purchased a host of spare parts, ranging from any or all of the above plus: SIMMs, TOS chip, serial and parallel ports, floppy and hard disk ports, the power supply unit, modulator, MIDI ports, the disk drive mechanism and loads more. When you look at it like that, £50 suddenly starts to resemble a good investment.

■ As the buyer you have the power - so don't rush in!

As an example, I recently paid £25 for an ex-demo 520 STE that had a spectacularly smashed casing and a missing mouse. I bought it for parts, tried it out, and found that it still worked, which has to be a great advert for the reliability of the ST .

There's more. The seller may have a complete system to sell consisting of a dead ST, but also a monitor, hard drive and external floppy drive. You may be desperate to get your hands on a high-res monitor but not interested in the rest of the kit. Get the seller to split up the kit and sell you the components you want, and everyone's happy (almost).

AMSTRAD PCW 9256 computer Word Processor 512k ram, Locoscript 1,2, 3, Locospell, Locofile £450.00. Stroud [illegible]

ATARI-ST High Rez mono monitor £65. Hand scanner £45. X-Ram 2 meg memory upgrade kit £40. Vidi-ST digitiser £30, other Atari bits available. Telephone [illegible]

Ooooh, about...

What can you expect to pay for these items? It's difficult to be accurate about such things, but you can estimate around £30-40 pounds for a high-resolution monitor, around £125 for a 40MByte hard drive, and around £25 for a floppy drive.

Spare parts for your ST are going to become increasingly scarce on the ground over the next couple of years

What are you waiting for? You have your check-lists, your cheque book and your enthusiasm to make the most of your ST. Do it – you won't be disappointed. ***stf***

THE FINAL CHECK-LIST

You've found a product that you want, you like the price and the seller has answered all of your questions to your satisfaction. All you need do now is hand over the dosh and take your gear... except for a couple of last points that you should check first:

1 Remember, goods are sold as seen. If you don't spot the fault before you take it away, then you can't legally ask for your money back.

2 If you're unable to test it on site (you live in Brighton and the ST kit is in Inverness) agree in writing that if you do find an undocumented fault you can return it. Make sure the seller's address is real.

3 Ask to see if the owner has the correct manuals, warranty and registration documents. It's a sad fat that hardware can be stolen, and software is often pirated, so make sure you are buying kosher gear.

4 As the purchaser, you have the power. Take your time, don't appear too eager and take a couple of minutes after seeing the item before saying yes. You never know, you may be offered further enticement.

5 Above all, if you have the slightest doubt, follow your instincts and don't buy it.

NOTE: The adverts shown here are for illustrative purposes only. They are no longer current. Please do not try contact the people concerned.

REVIEWS..

YOUR QUICK GUIDE TO THE *STF* REVIEWS

This month in *STF* reviews:

38: RAINBOW
Who says a Falcon can't draw?

40: IMAGECOPY 3
Converting image files the easy way

42: EZ-ART PROFESSIONAL
Artistic talent on a disk

44: XENOMORF 2
It's back, and it's brought its 2

46: MASTERING ATARIWORKS
Throw *AtariDoesn'tWork* away

48: MIDIGRID PROFESSIONAL
Create a square dance, maybe?

49: FASTCOPY PRO V1.2
Copies things quickly and like a pro, yes

50: NOVA 24-BIT GRAPHICS CARD
50 per cent more bits than ever before

52: HP LASERJET 4M PLUS
Lots of leads and a big exciting box

54: PUBLIC SECTOR
It may be tacky, but it's not cheap - it's free

58: FALCON PD SPECIAL
Every piece of Falcon PD ever. Maybe

63: INDIES CORNER
Start shoegazing now

64: ISHAR 3
Bless you

66: RORKE'S DRIFT
Ethnic trampling on a budget

You want to know all our reviewers' most intimate secrets?

Trenton Webb
In his spare time, he'd enjoy biking, reading and doing anything considered dangerous, but he doesn't have much free time any more. Notes of sympathy to the usual address.
Favourite film: *Flash!* (ah aaaah)

Clive Parker
Though working out every day to keep his body the temple it is, Clive has certain vices: "Real men only use high radiation monitors." When he's not busy catching scary radioactive nuclear diseases from the three monitors on his desk, Clive's hobbies include ferret knotting.
Favourite film: *The Fly*

Simon Forrester
Having just arrived on the magazine, Simon's interests have been forced into the set pattern of making tea and polishing shoes in the hope someone might let him near a word processor at some point. He hopes.
Favourite film: *Oliver!*

Peter Crush
An Essex boy, Peter's hobbies include photography, sport, music and crying "watch out for that field mouse" on alternate Wednesdays.
Favourite film: *The Battle Of Britain*

Andy Curtis
Andy's latest CD, *The Dark Side of the Sausage,* sold over four copies and has achieved almost cult status within his family – although his Mum doesn't like it much. The police have already been informed.
Favourite film: *M*A*S*H*

Frank Charlton
Frank's interests include programming in *STOS* and *GFA Basic,* erasing hard drives, anything to do with *Star Trek* and being a cousin of Jack Charlton. "Swimming is too much like... bathing." Quite.
Favourite film: *Get Carter*

Mac Marsden
"Plastic" lurks around a college in Durham working as an assistant in the computer department when he's not bashing out his GFA column. Egotistical and arrogant, Mac recently bought a PC so he can work at home and is now seeking psychiatric help.
Favourite film: *The Couch Trip*

Dug Armstrong
Led by an addiction to graphics into buying a Falcon and reviewing for *STF.* When interrogated Dug said, "I like cats. At the moment I have 81 moggies running around the place and I am expecting six more by mail order this week."
Favourite film: *Goldfinger*

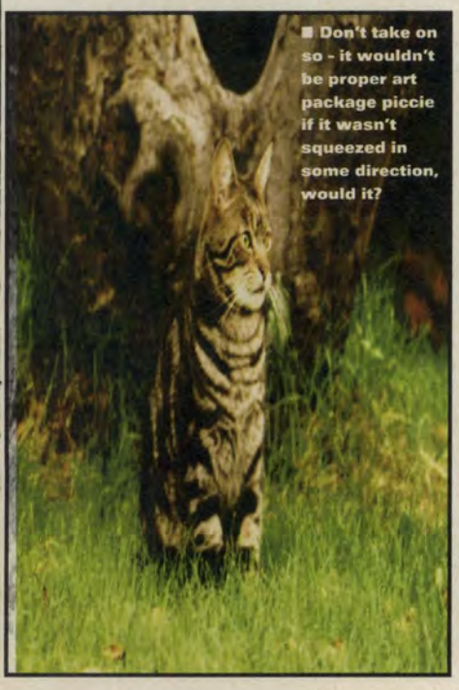
Tony Wagstaff
A man of culture, Tony splits his time between playing in a string quartet and hammering out 68000 assembler code for ST Answers. When we last phoned him he said "There's no one in at the moment, if you want to book the string quartet call 0555 753412," in a strange tone of voice.
Favourite film: *Young Einstein*

■ If you keep an open mind, you can drink a hell of a lot of bitter.

THOSE MARKS

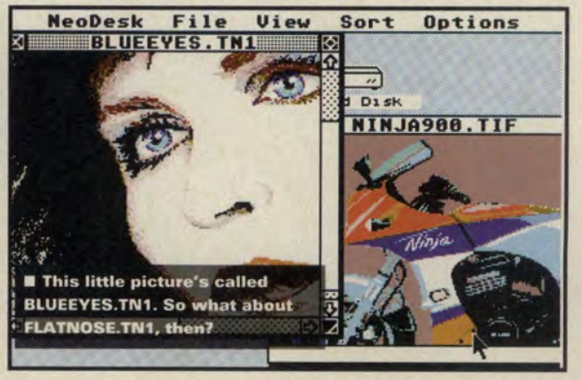
Probably the biggest problem we face as reviewers is misinterpretation of the marks we give. So, in order to clear up all confusion from here on in, and to stop angry manufacturers hassling us, here's the guide to those all-important *ST FORMAT* marks:

00-10	Turn. The. Page. Now
10-20	Lacking, well, everything really
20-30	Still not very good
30-40	It's along the right lines
40-50	Just below average
50-60	Probably very limited
60-70	Worth considering
70-80	Definitely worth considering
80-90	An essential addition to your setup
90-100	Go and buy this now. No, really – now


■ Don't take on so - it wouldn't be proper art package piccie if it wasn't squeezed in some direction, would it?

■ Don't take offence, but have you done dry stone walling before.

■ It's *Star Trek* again! *(Is this some kind of running gag? - Ed)*



■ This little picture's called BLUEEYES.TN1. So what about FLATNOSE.TN1, then?

OVER THE RAINBOW

Addiction Software have released a new true colour paint program for the Falcon. *ST FORMAT* follows the *Rainbow* and discovers a crock of gold

Falcon owners take heed! *Rainbow* is a brand new paint package specifically written for your machine. This low-cost software is a powerful tool for creating, editing and processing true colour images and breaks new ground in its use of the Falcon's hardware.

In the beginning

The *Rainbow* disk contains a single executable file and a single DSP LOD module together with two tiny configuration files and some example pictures. The program files may be copied to a hard disk directory, or run directly from floppy. But don't be fooled! The incredibly small size of the software does not reflect the contents. *Rainbow* has many features not available in larger – and more expensive – applications.

Let there be light

When *Rainbow* starts up, the first thing you notice is the blindingly colourful menus of the Picture Studio. *Rainbow* doesn't use GEM, instead it controls the Falcon's hardware directly to produce its own video modes (see Loads of modes box). The screen is smaller than with most GEM programs, but hardware scrolling is used to enable you to pan round large images with lightning speed.

> **"It sets a new standard in low-cost graphic software, and begins to prove what the Falcon is capable of"**

Although the design of the main screen is unusual – the menus scroll round if they can't all fit into the current resolution – this is not a problem. Not only can scrolling be locked from the keyboard, you can also rearrange the position of each menu box and save your settings. Incidentally, you can switch between any of the available modes without having to reload your image each time.

Rainbow is ideal for touching up scanned true colour images.

All images in the *Rainbow* Picture Studio are edited via a fixed size (200x200) window which can be moved around the work area. The dimensions of the full screen are limited only by your Falcon's memory, and can be changed using the Define Another option or simply by loading in an external picture. *Rainbow* loads and saves in 16- and 24-bit Targa and TIFF formats.

Once you have created an image, the fun really begins. Although *Rainbow* has only a small set of editing tools, some are very flexible. Simple line and pixel painting is achieved via the Pen, Line and Shape tools, while more esoteric effects include a Spray tool with variable spray speed, a Sponge which acts as a large rectangular brush, and a simple one-colour Fill. Some of these work well but others are strangely limited. The Shape tool, for example, can draw outlined and filled shapes in a variety of styles, but only offers a box or triangle as the basic shape, making the drawing of curved objects difficult.

Powerful tools

Most tools have several settings which affect the way they work. Normal simply paints with the chosen colour, whereas Blend overlays one colour with another transparently, and Smooth alters pixel boundaries to blur contrasting borders. The Shape tool offers a "fade-filled" mode, in which a smooth colour range is used to create a graduated effect. These extra settings can produce some star-

Most of the drawing tools have a range of adjustable settings.

Loads of modes

Here are the maximum resolutions for each mode, assuming your monitor can handle the settings

VGA
336x560 (0.6) (Full Overscan, 54Hz, Vertical High Res)
336x280 (1.2) (Full Overscan, 54Hz)
336x252 (1.33) (Full Overscan, 60Hz)

RGB/TV
768x280 (2.74) (Full Overscan, 50Hz, Horizontal High Res)
384x246 (1.57) (Full Overscan, 60Hz)
384x280 (1.37) (Full Overscan, 50Hz)

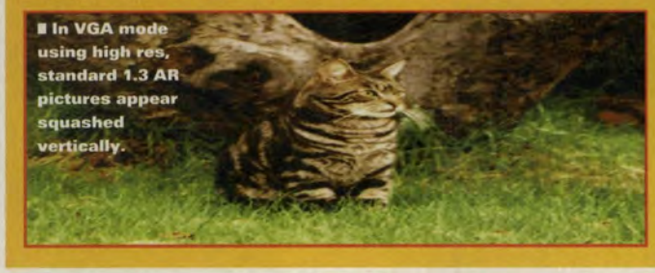
Note that the RGB monitor (or TV) provides the highest screen resolution (384x280) without using a non-standard aspect ratio.

It's the shape that matters

An often ignored but vital attribute in Falcon graphics software is the aspect ratio (AR), which defines the shape of the display screen. There are various ways of expressing the measurement, one of the simplest being x/y, the horizontal resolution divided by the vertical. Thus, for a screen 640x480 pixels, the AR is 1.33 (roughly). This particular value represents the standard landscape format used by most display hardware, including television.

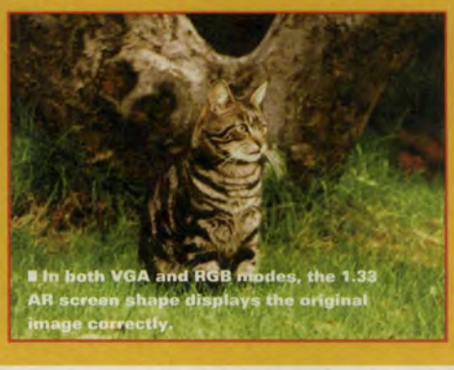
So, in order to move your images easily between different software and computers, a screen mode with an AR of 1.33 should be used (see Loads of modes box). If you deviate from this, the pictures created may look distorted when displayed.

Of course, you can use modes with non-standard ARs to produce your pictures, and then resize them to restore the proper shape. However, you must then rely on your software to provide a non-proportional rescale. *Rainbow* does provide handy Halve X and Halve Y functions which can be used independently to correct AR on a picture created with one of the Falcon's strangely shaped display modes.



In VGA mode using high res, standard 1.3 AR pictures appear squashed vertically.

In RGB mode using high res, the same picture appears squashed horizontally.



In both VGA and RGB modes, the 1.33 AR screen shape displays the original image correctly.

tling results, particularly during Cut and Paste operations.

Although only rectangles can be cut, these are treated as separate pictures and can be edited prior to a paste, which can optionally blend the two images, ignore the block background and protect portions of the target picture. This falls slightly short of a proper block painting facility, alas, and all cut and paste operations are restricted to the viewing window.

Colour management is crucial to painting software, and *Rainbow* offers a number of controls for creating and assigning colours. One useful feature is the ability to assign different draw colours to each mouse button, reducing the time spent moving between the palette and the drawing. Colours can be picked straight from an image using the Pick C tool, or defined using the three RGB colour bars from the full range of 65,336 possible values. Controls beside the main colour bars enable you to fine-tune a colour – darkening or lightening as required. A colour graduated square with an adjustable range is provided to enable direct selection of a desired colour.

Rainbow is ideal for adding post-production to raytraced scenes. This landscape is first loaded as the background picture.

This warbird has been cut from a separate image with a black background. The black can be ignored by the Paste function.

Pasting the warbird results in a composite picture.

Rendered images by Art-Tech

Evolutionary stages

Rainbow's scrolling screen feels strange at first, but this doesn't get in the way and you soon get used to the menu system. The Picture Studio is ideal for touching up scanned or ray-traced images and for producing straightforward drawings. However, if you want to process entire images, another feature comes into play.

The program has been written in a modular style, enabling other Studios to be added. *Rainbow* also comes with a *Photo Studio*, which supports full-image processing. Movement between studios is very fast and does not require re-loading.

The *Photo Studio* has a larger viewing window, but scales down a picture which is too big to fit. From here, global effects can be applied, including a Negative function, which creates an inverse colour map and can be selectively applied to red, green and blue planes in any combination. There is also a control to adjust brightness, contrast and colour intensity, and a Noise option which adds a coarse-grained effect.

Destiny

Rainbow is destined to be to the Falcon what *Neochrome* and *Degas Elite* were to the ST. It sets a new standard in low-cost graphic software, and begins to prove what the Falcon is capable of. At the moment, the package is slightly unbalanced, offering some ridiculously powerful features and some downright strange omissions. But technically, *Rainbow* is a minor miracle, and version 2.0 could be one of the killer applications the Falcon has been waiting for.

DUG ARMSTRONG

Rainbow

£29.95 JCA Europe Ltd
☎ 0734 452416
Any Falcon030

Highs
- Uses Falcon hardware including DSP.
- Supports Tabby Graphics Tablet.
- Modular design bodes well for future versions.

Lows
- Missing some basic features.
- Only uses small screen sizes.

What else?
- *TruePaint*, £39.95 from HiSoft ☎ 0525 718181 Uses GEM, works in a higher res but is slower.

81%

IMAGECOPY

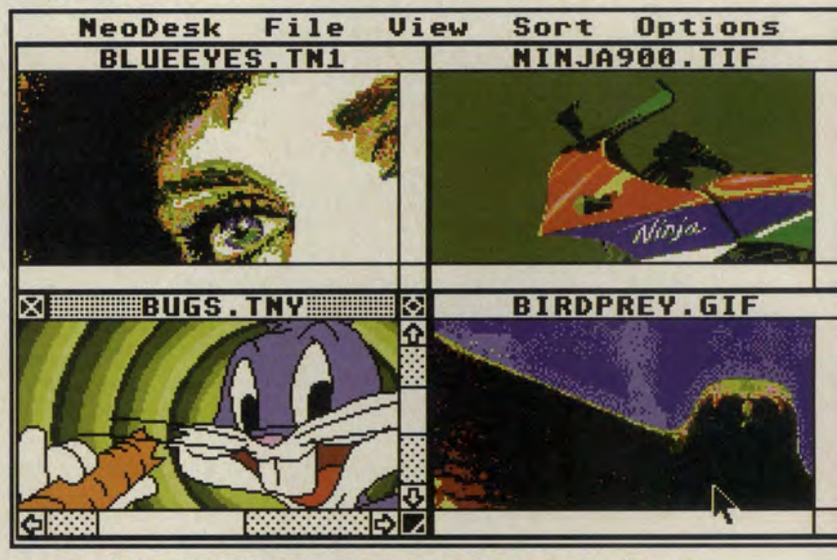
Want to handle a huge variety of picture formats on your ST? Peter Crush checks out the very latest image utility that does it all

It used to be so simple – just a handful of picture formats for the ST which most art and drawing software could import, display and print. But now there's a bewildering range of image formats, older ST art programs can't cope with the more modern formats and not even the latest programs can use all of them. Luckily there is an answer in the guise of *Imagecopy 3*, the latest version of *Imagecopy* from FaST Club.

"*Imagecopy 3* is a brilliant piece of software; it's a clever, powerful program and it's easy and intuitive to use"

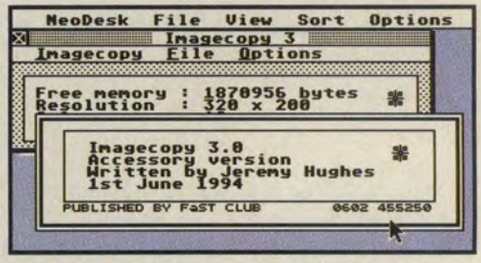
Even better

Following the earlier incarnations of *Imagecopy* is version three, which really is the all singing, all dancing image utility program for your ST or Falcon. It improves on all the features found in previous versions and adds loads of brand new capabilities too. *Imagecopy* could always "grab" images from screen and save them to disk, load and display pictures, print out images and convert between different image file formats.



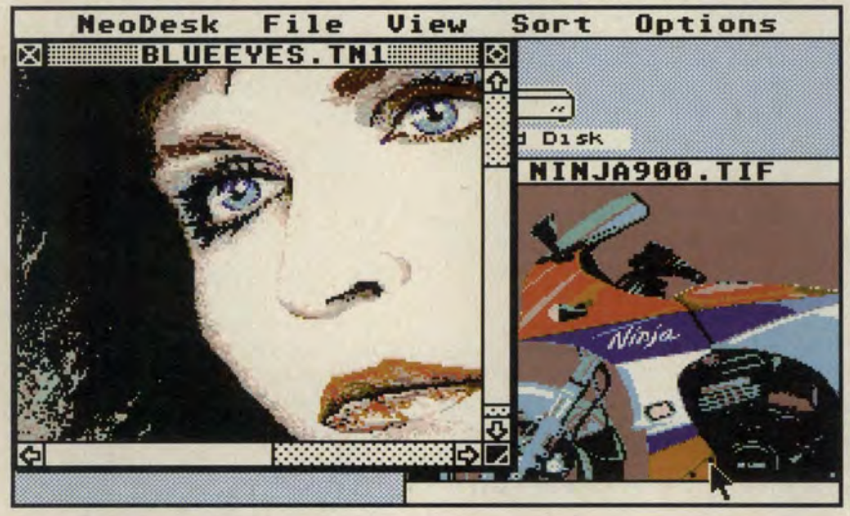
■ You can display plenty of images on your screen, but the actual number depends on what version of TOS your computer possesses.

The new version does all of these things even better than before, and has many new capabilities too. It can batch process a list of files, perform a slideshow of pictures, and even catalogue your images and print them out complete with filenames as thumbnail pics.



■ Voilá, *v3 of Imagecopy*, and not only does it tell you the exact version number and date of issue but also how much RAM you have left.

Imagecopy 3 is provided on a double-sided disk, and comes with a 90 page A5 size manual, plus an extra disk of rather good pictures to play with. You can run *Imagecopy 3* as a Desk Accessory from within your existing GEM programs or simply run it as a stand-alone program. Both versions can be installed on your usual or alternative Desktop



■ *Imagecopy 3* displays pictures in GEM windows, you can easily move them about on-screen, re-size them and scroll their contents.

Look at all these new features!

Batch processing: *Imagecopy 3* can view, print, or convert batches of images. A log-file option enables you to leave it working unattended.

Falcon overscan: *Imagecopy 3* automatically uses the Falcon's overscan mode for full screen viewing on standard non-VGA monitors.

Improved colour reduction: Including adaptive palette matching for high quality reproduction of 256 colour or true colour images on 16 colour or 256 colour systems.

Improved conversion option: With the ability to convert image colour depth as well as the image.

Improved dithering: A choice of five random dithering options. Ordered colour dithering enables 256 colour and true colour images to be displayed quickly on 16 colour and 256 colour systems.

Improved user interface: With hierarchical menus and extensive menu/dialog short cuts. Configurable single key menu short cuts.

New read formats: Calamus Raster Graphic (CRG), Deluxe Paint ST, Doodle/PIC, JFIF (JPEG), Portable Bitmap, Pictor (PC Paint), Pixart, Prism Paint, RSC image, True Paint, compressed Windows Bitmap.

New write formats: GIF, IFF/Deluxe Paint, JFIF (JPEG), PCX, Prism Paint, Targa monochrome/palette colour, TIFF LZW-compressed, Windows Bitmap, XIMG true colour.

Print catalogue option: Catalogue your image collection in mono or colour with up to 40 or more tiny images on a single A4 page.

Print-quality option: draft/normal or draft/normal/best on all printers. Best-quality print improves the print quality from dot-matrix printers with worn ribbons.

PLUS: Create slide shows in any video mode, Greyscale options for viewing and converting images, Multiple file-loading with the Selectric file selector, options to print descriptive text and file names with images.

COLOUR 3

■ Just to demonstrate that *Imagecopy 3* works in all resolutions, this is part of the Falcon screenshot as seen on a 16 colour low res screen.

so when you double-click on image files they activate *Imagecopy* and are loaded and displayed.

Imagecopy 3's main menu appears in a little GEM box at the top-left of the screen, from which you can select three pull-down menus. The first is Information which tells you the version number. The second sub-menu is File which enables you to load, save, convert and print images, either by clicking on the appropriate menu entry or via a simple keyboard short cut. This brings up the file selector, pick the image you want to see, and it's displayed in a GEM window. The third sub-menu contains the many options *Imagecopy 3* features, and you can reconfigure and save them to suit via a system of cascading and pop-up menus. For instance, one of the sub-menus under Printer options is Printer Type – here you can select from a wide range of printer drivers to match your own.

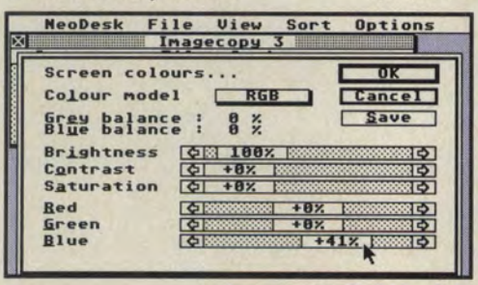
■ To see such colourful results as this you need *Imagecopy 3* and a Falcon, so what are you waiting for? A small inheritance, perhaps?

Superb output

Imagecopy 3 is a brilliant piece of software; it's a clever, powerful program and it's easy and intuitive to use. The new improvements make it the most useful single utility for dealing with images, and it's well worth upgrading to. When it comes to screen grabbing, viewing, cataloguing or converting between formats it's unsurpassed.

If you have a colour printer, *Imagecopy 3* enables you to produce superb output, and finely adjust the colour balance and brightness for the best outcome. About the only thing it doesn't do is to draw the pictures for you, but then it's not supposed to be an art program!

PETER CRUSH



■ Screen displays can be fine-tuned with these easily used slide bars, and a similar dialog independently controls printed colour output.

Upgrading to version 3

If you own an earlier version of *Imagecopy* you can upgrade to version 3 by returning your master disk and the appropriate fee: upgrade from *Imagecopy* £22.95, from *Imagecopy Colour* £17.95, and from *Imagecopy 2* £12.95.

Imagecopy Colour 3

£29.95, FaST Club
☎ 0602 455250

Highs
- Good results on any system.
- Works with nearly all image formats.

Lows
- There aren't really any!

What else?
- *GEM VIEW 3* comes pretty close but it's not as easy to use, it can't grab screens and doesn't have such good all-round facilities. Being Shareware there's no printed manual nor the level of support that the FaST Club provide.

92%

What does Imagecopy 3 do, then?

It does a helluva lot, here are Imagecopy Colour 3's ten top features at a glance!

1. Powerful batch processing facility: converts or prints multiple batches of images.
2. Can be used as a Desk Accessory or executable program.
3. Catalogues images with up to 40 or more images displayed on a single page.
4. Converts images between different formats or to different colour types (such as true colour to 256 colour).
5. Copies (grabs) images from screen in any ST/TT/Falcon video mode.
6. Creates halftone images to use in other programs (WPs, DTPs and so on).
7. Displays images and runs slide shows in any ST, TT or Falcon video mode.
8. Uses the standard ST and Falcon GEM interface.
9. *Imagecopy Colour 3* can read and write: DEGAS, GIF, IFF, IMG, JFIF (JPEG), PC Paintbrush, Prism Paint, RSC free image, TrueVision Targa, TIFF, and Windows Bitmap. Other read-only formats include: Art Director, Calamus Raster Graphic, DR Doodle, Macpaint, Neochrome, OS/2 Bitmap, Pictor, Pixart, Portable Bitmap, Spectrum 512, Tiny, and True Paint. Phew!
10. Prints images and screen dumps in black and white or colour on a wide range of printer types including 9-pin, 24-pin, Bubblejet, DeskJet and LaserJet.

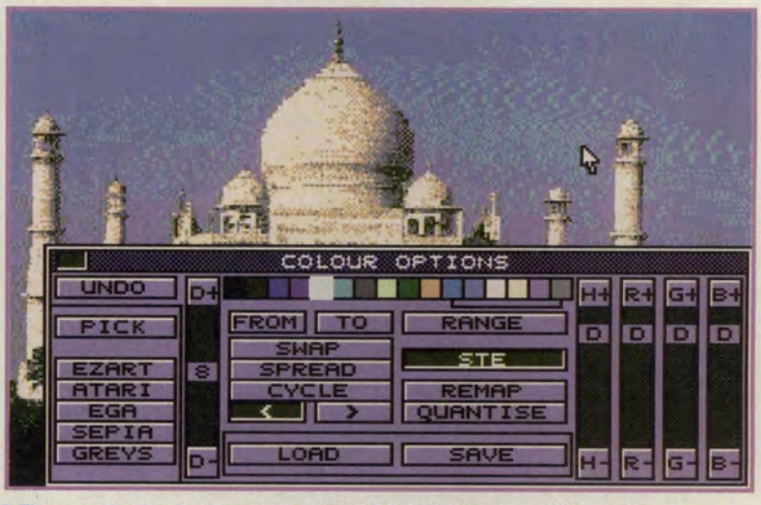
EZ-ART PROFESSION

Many people, at many times, in many places have raised the question, "But is it art?" Yet, curiously no one has ever been heard to ask, "But is it Trenton Webb?" It is and he's not

Most of us can spot gaps in markets but few of us ever actually take the opportunity to exploit them. *EZ-Art Professional*, the commercial sequel to the excellent PD paint pack *EZ-Art*, does just this, and it's a fact that the authors are rightfully proud of. "The intention is to give the creative person in you a chance to produce something that looks good, but without the hassle!" boasts the manual and to a great extent it's right. As a result *EZ-Art Professional* storms straight to the head of the low-end painting queue.

EZ-Art Pro is a no-frills, in-yer-face, 16-colour paint package that's been designed to be so usable that the metaphorical infinite monkeys (the ones who are always churning out the complete works of Shakespeare) could replicate the works of Michelangelo or Mondrian with it in minutes. As monkeys tend to buy PCs, ST painters are off to a flying start.

EZ-Art Pro works through icon controls and an extensive range of keyboard short cuts. After only a few minutes it's possible to leap around the program at speed, calling up the functions you want, fast. And speed is important simply because when you're working on a picture you really don't want to have to hunt through three nested menus to get an effect. You want it now, instantly, while the idea's fresh in your mind.



■ There are loads of colour options available including the ability to alter the R, G, B and hue of each colour or swap palettes completely. You can even convert pictures to greyscale or sepia tints.

TOOL-BOX

An art package is only as good as its drawing tools. If it doesn't enable you to do what you want on screen, then you aren't going to create that pixelised Guernica now are you? Luckily EZ-Art Pro offers all the tools you need and a few more besides. Tools like:

1 Point – place colour one pixel at a time, useful for retouching once you've finished the main part of your picture.

2 Freehand – the normal drawing mode for *EZ-Art Professional*.

3 Continuous straight line – First fix two points and then a line is drawn. Useful for sketching outlines.

4 Connected lines – similar to line, only it enables you to change direction.

5 Ray – draws any number of lines from a single central point. Odd, but useful. Probably.

6 Curve – draws a straight line which can then be 'bent' by dragging after the points are fixed.

7 Mirror – produces an instant duplicate without the need to go through the cut/paste procedure.

8 Airbrush – spray can mode; size and speed are adjustable. The brush then scatters pixels according to the 'nozzle' chosen.

9 Eraser – rubs out pixels from your picture. Erm, that's it!

10 Flood fill – fills area with solid colour or pattern defined in the Design Fill option.

11 Typography – places text from a range of fonts on the picture.

12 Zoom – look at the picture in x2, x4 or x8 magnification so you can work up close (at pixel level) on your masterpiece.

13 Cut Block – picks up and duplicates the defined area of a picture. Note: Cut picks up an entire rectangle – unless in X-Ray mode.

14 Carve Block – as Cut, but with an irregular shape instead of a rectangle. Using Carve you get complete control of the shape to be selected.

15 Block – lets you know when you are carrying a block in memory.

16 Pencil – for freehand drawing in single pixels.

17 Brush – As Pencil, but with a wider range of sizes. Paints 'rounded' pixels. You can determine the brush size/shape via a sub-menu.

18 Roller – Similar to brush but with a 'square' rather than rounded paint effect.

AL

The quick-start concept doesn't necessarily limit the range of options. *EZ-Art Pro* boasts some impressive tricks, which help to create good on-screen effects – particularly in the area of block manipulation. It's rugged in terms of importing images too, offering not only flexibility but some quality Palette Modifications tools (the highly pleasant Quantise and Remap) which help make the most of the 16 available colours.

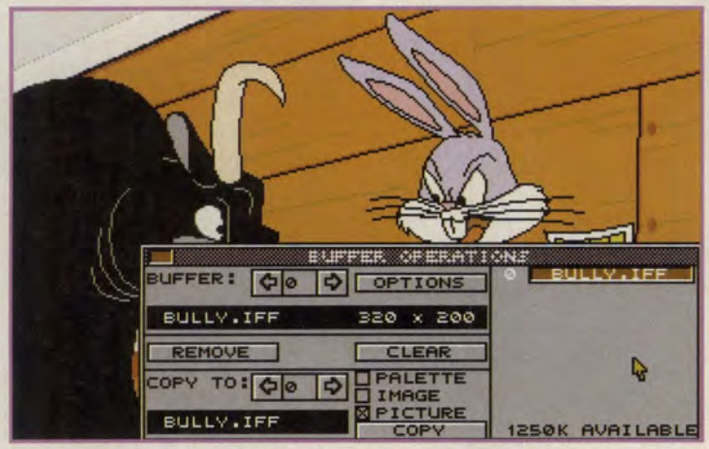
The hard-core paint package features (from straight line tools through to irregularly shaded blocks) are present and work well, which makes it possible to sit down with the manual and within a hour not only be familiar with the program but have produced a passable picture to boot.

The advantages of *EZ-Art Pro* for wanna-be pixel painters are speed and friendliness rather than power. *EZ-Art Pro,* especially at such a bargain price, offers almost everything the 'enthusiastic amateur' could wish for. And the authors' decision to go for the complete low-level package can't be criticised; there was previously nothing that fell in the cheap and competent category. It's just a little galling, because the 16 colour stuff is so elegantly crafted that you can't help wondering what the programmers could have done with the real fancy stuff.

EZ-Art Pro is almost a victim of its own success. It fulfils the 'fun, friendly and fast' brief to the letter, and if that's the kind of paint package you're looking for then go out buy it without hesitation – it's well programmed, well documented and well thought out. If you're an accomplished dabbler with the likes of *Deluxe Paint,* though, there are few extras here that could be considered £30-worth of temptation.

TRENTON WEBB

■ **You can load all kinds of images into *EZ-Art Pro* - even if they have more than 16 colours. You can also control how the program interprets the picture on screen by altering the dither, colour frequency, colour reduction and palette in Render mode.**



■ **You can shift images around between different buffers and screens. The number of buffers available depends on how much RAM you have in your ST.**

EZ-Art Pro

£29.95 Floppyshop
☎ 0224 586208

HIghs
- Easy to use yet still boasting some elegant features
- Range of block operations is impressive
- Splendidly low price

Lows
- Missing a few high-end functions

What else?
- *Deluxe Paint* £59.99 Electronic Arts ☎ 0753 549442

83%

CHIPPING OFF THE OLD BLOCK

As well as the 'regular' tools EZ-Art Pro also boasts a highly useful set of block manipulation tools. Ideal for the cut and paste painter, you can work on different buffer screens and then stick your picture together one piece at a time:

1 Resize – enables you to resize a cut or carved block.

2 Rescale – the same as Resize, but keeps block in proportion to itself to minimise distortion.

3 Remap – enables re-ordering/re-colouring of cut/carved blocks for maximum use of colour.

4 Quantise – same as Remap but fakes colours using existing palette by blending two other colours.

5 Vertical flip – turns block completely upside down.

6 Horizontal flip – flips block horizontally to 'reverse' the current block.

7 Recut – enables you to redefine the shape of a block once it has been cut. Handy if the block is too big.

8 Rotate – turns block though 90 degrees. Useful for patterns.

9 Rotate 180 – turns block through 180 degrees.

10 Rotate 270 – turns block through 270 degrees.

11 Skew Y – tilts the block on the Y axis, creating odd, if not always expected results.

12 Skew X – tilts the block on the X axis. Unpredictable but fun.

13 Full skew – tilts the block both on the X and Y axes – you decide how much the block gets 'skewed' in each direction.

14 Recarve – enables you to redefine the shape of a block once it has been carved. Again this is not limited to Cut's rectangle.

15 Horizontal shatter – pixels are displaced along the X axis. Useful for creating random patterns.

16 Vertical shatter – pixels are displaced along the block's Y axis. Once again, this is curiously useful.

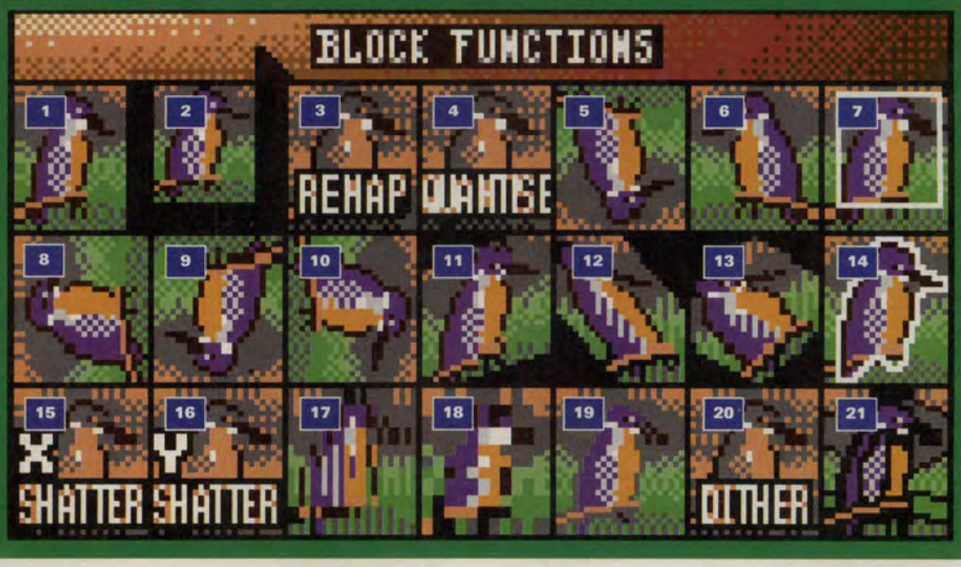
17 Pixelate #1 – makes pixels in the block bigger and blockier. If that's what you want.

18 Pixelate #2 – makes pixels in the block bigger and bigger.

19 Soften – groups pixels into fine lines making the block look smoothed.

20 Dither – acts like Shatter, but in a more random manner.

21 Outline – draws an outline around detail within the image. Uses selected colour from the base palette as its guide.



XENOMO

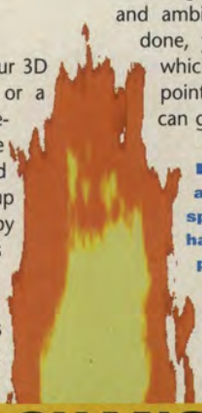
One of the graphical giants is back, and it's meaner than ever. This is an image renderer with balls.

Xenomorf is one of the sexiest programs available for your ST, and it just got sexier. Not content with producing a blisteringly good rendering package (*Xenomorf* – reviewed in issue 47 and scoring 93%), Lexicor have now enhanced it. *Xenomorf 2* is a package that gives your ST a massive amount of graphical power, turning humble wire-frame 3D objects into multicoloured Phong-shaded works of art. Like the original program, *Xenomorf 2* uses 3D objects created in *Cyber Sculpt* and renders them with enormous power and control over the results.

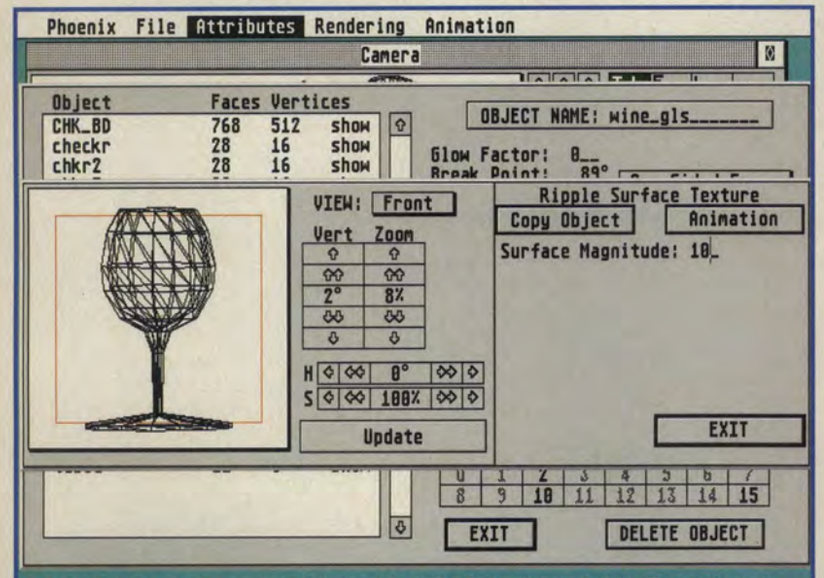
Scenes are built from your 3D objects, positioned, lit and given surface properties, all using a relatively simple GEM program. Final images can then be rendered with simple flat polygon shading, smarter Gouraud or full-blown Phong with shadows. Finished pictures can then be saved in a number of different formats including GIF and TGA.

Step by step

The first step is to create your 3D objects using *Cyber Sculpt* or a similar program that can create 3D2 objects. These are imported into *Xenomorf* and positioned; you can build up more complex pictures by importing several 3D2 files (giving you more flexibility than *Cyber Sculpt* itself offers). Positioning objects exactly where you want them is fairly painless. Once you've positioned your 3D actors, you light the scene by positioning any number of variable strength lights, including spot, point source, solar and ambient lighting. Once this is done, you position your camera, which can be anywhere and pointing at anything. Then you can give your wire-frame objects



■ An example of the power and flexibility of colour splines is this flame, which has been mapped on to a plain square, most of which is transparent. With practice you have an extraordinary amount of control over the look of any surface.



■ Applying the ripples surface texture. It's still a flat polygon, but it affects the way light bounces off the surface. As with all the textures you have full control over the orientation and strength of the effect.

WIND OF CHANGE

There is a healthy number of new features in *Xenomorf 2*. It is now fully *MultiTOS* compatible, which means that you can render in the background if you wish. You can also interrupt rendering at any point and continue later, as well as view the results as it chugs along. Lights can be coloured and the number of light sources is unlimited.

Animation has been improved. Tweening is still a feature: you define a start and end position of your lights, objects or camera and *Xenomorf* works out a series of pictures for you over a defined number of frames. You can now use an animation within an animation too – an FLI, FLC or FLX animation can be texture-mapped on to an object.

For much greater control you can now render *Chronos* 3D sequences using an optional program called *ANM-Link*, which enables you to combine the clever animation tricks of *Chronos* with the rendering power of *Xenomorf*. A special bundle of all three programs is available for £250. It's expensive, and the process is fiddly, but the results are worth it. You can create some absolutely gob-smacking animations.

One of the criticisms of the original was the limited number of surface textures. The latest version addresses that by adding a whole new range, including colour splines. These ingenious textures are built from coloured layers with variable turbulence and transparency. Start overlaying them and some powerful effects are possible, although it is a touch complex. You can load and save your colour splines, and a range of examples are included. Also new on the texture front are bozo, gradient, agate, granite, ripples, bumps, waves, and eroded textures.

Xenomorf 2 also has more realistic shadows which can now be turned off for individual objects. Fog also makes an appearance – you can cloud your scene with a realistic misty effect. All the new features add up to more flexibility and power, especially the new textures.

RF 2

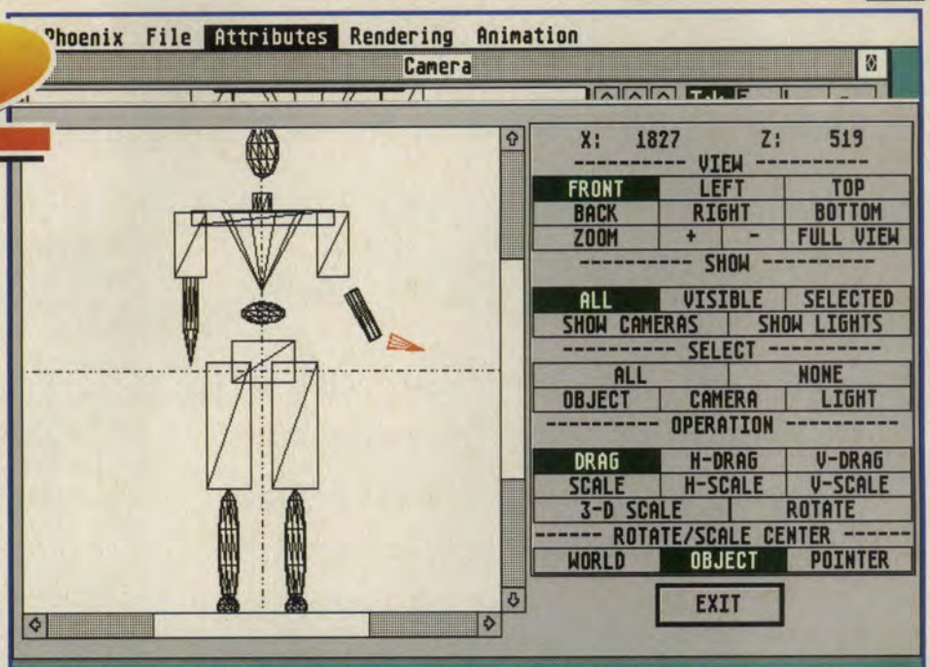
body by assigning colours and surface textures. One very hunky feature is texture mapping, which takes a picture and wraps it around your 3D object. For example, you could make a sphere and wrap a map around it to create a planet or a globe. You can also assign surface textures such as wood grain and marble, as well as bump-mapping. This gives flat surfaces the illusion of real texture such as ripples or dents.

When everything is in place, just select the format of the final image (several different formats are available, including GIF and TGA), then hit the rendering button and await the glorious results (or not, as the case may be).

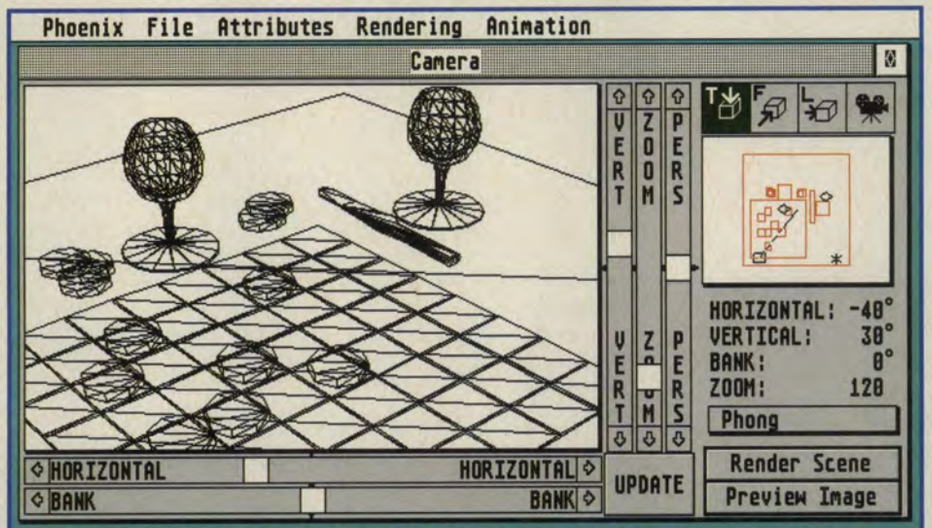
Good pictures take practise and more than a little patience – if you're prepared to put the work in then you're in for a treat. They need decent 3D objects to work from and realistic lighting. The biggest mistake most people make is to set the level of ambient lighting too high – although this enables you to see every detail of the scene, it gives the image an unreal glow and makes everything look plastic. Keep to point and spot lights, bringing a few shadows and dark corners into your scene, and it will look much more life-like.

Important Details

Xenomorf 2 runs on all STs with over 1MByte of memory, and the more colours you can display the better. On a standard ST you can render in Spectrum 512 format, including an STE version, while on TTs and Falcons you can go for anything from 256 colours right up to the lofty heights of 24-bit colour in any sized image you want.



■ Positioning your objects. Each can be moved and rotated freely in three dimensional space until it's ready for the final image.



■ The main screen, in which the main window shows a wire-frame view of your scene. Anyone familiar with GEM will have no trouble using the program. You only really need to consult the manual a couple of times before you start rendering.

Flummoxed?

Getting into rendered graphics is a fascinating and hypnotic field, and the final images can be superb. If you were disappointed with *GFA Raytrace*, flummoxed by *POV* and restricted by *Raystart*, this is the one for you. Although *Xenomorf* looks like a raytracing program, in fact it uses a different mathematical model to recreate a scene, with the advantage of extra speed. It's easy to use and flexible (pictures of any resolution and colour depth can be rendered on any ST), and if you upgrade your system at any point *Xenomorf* will be there to take advantage.

Graphic packages don't come much better than this. *Xenomorf* produces brilliant output with minimal fuss. You don't need a degree in maths, and there's no complex set of commands to struggle with. If you want a way into the world of seriously good images, look no further.

CHRIS LLOYD

■ Now this is more like it - a superb piece of work. Hard work put into designing your scene really pays off when it's rendered with the sort of power that *Xenomorf* offers. The ripple effect has been put to good use here as well as some very skilled modelling - the dinosaur is brilliant.

But whatever your ST system, *Xenomorf 2* will make it shine – the quality is superb.

There are two versions of the program: one for normal STs and one for 68030 machines fitted with a 68882 maths coprocessor. It's fully compatible with a wide range of graphics cards, including Crazy Dots and the new Nova cards (see the review on page 50). Rendering times are fast, when you consider the scope of the task involved, but the highest quality settings are still slow and you often need to leave your machine overnight if you do a large or complex scene.

The manual is a touch above the average and mercifully thin. Some of the more complex functions require some experimenting, but if you're creating fairly simple images to start with you should be up and running in no time.

Xenomorf 2

£129 (upgrade from original £80) from 16/32 Systems ☎ 0634 710788

Highs
- Easy to use
- Results can be amazing
- Works on all systems
- Renders in up to 18 million colours

Lows
- Your wallet won't like you
- Rendering full Phong with shadows can be slow
- Colour splines can be difficult to master

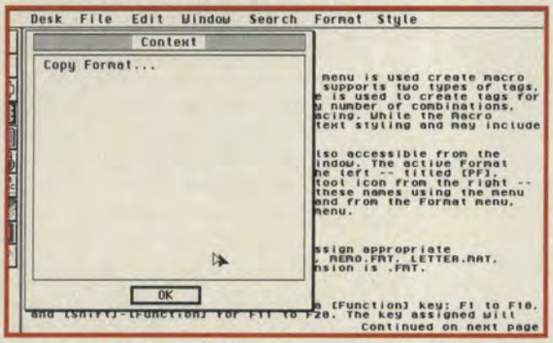
94%

MASTERING ATARI

Ever fancied a personal tutor to help you get to grips with the complexity of *AtariWorks?* We investigate what could well be the answer to your prayers...

So you bought the integrated *AtariWorks* package but you're sick of flicking through the manual every time you want to look up a feature? Don't you wish *Works* had some online help built in, especially where you could find the entry you're after without hassle? So did Spar Systems in the USA, so they released this help system for *AtariWorks* through FaST Club in the UK.

Mastering AtariWorks is described as a Hypertext help system for *Works* – it runs alongside *Works* itself as a Desk Accessory, so you always have access to it as you work. Hypertext is another buzzword knocking around the computer scene at the moment – basically it means that you can skip from one topic to another by clicking on relevant words. A page of text explaining graphics might have the words "bitmap" and "vector" highlighted, and clicking on them would move you to the entries attached to them. It sounds a little odd, but a properly set up Hypertext system can make the job of finding the info you need ludicrously easy.

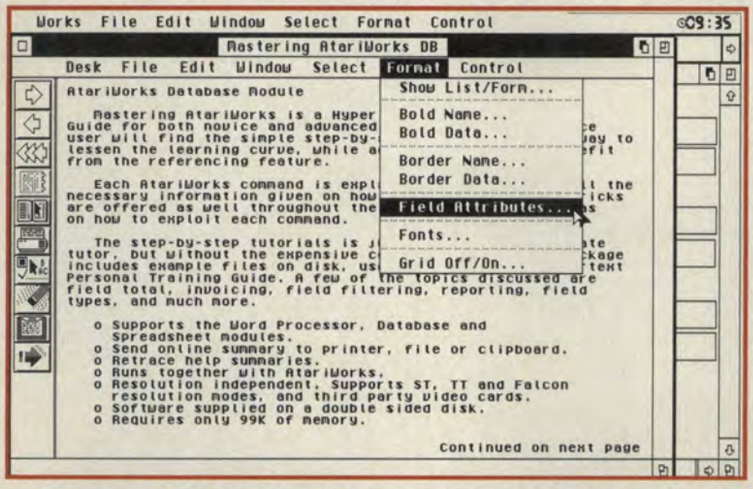


Help can be context sensitive. The entry for Macros shows that another entry, for Copy Format, is linked to it. Click on the linked entry and you jump straight to it.

Massive selection

The program comes as two Desk Accessories – one for the *Works* Word Processor module and one for the Database – a massive selection of tutorial and example files in *AtariWorks* format, and a manual. The manual is more of a tutorial for *Works* itself, as the instructions for installing and using the accessories only take up a few pages, with the rest devoted to some excellent hints and tips to help you get the most from *Works*. The only support for the Spreadsheet is in the manual, but future versions promise true online help.

Using the help is dead easy. The Accessory has a clone of the *AtariWorks* menu, so clicking on an option gives the help you're after straight away. Moving through pages is achieved with the icons, and the current topic can be printed or saved to disk via the Clipboard. A full index is also available to look up particular entries.

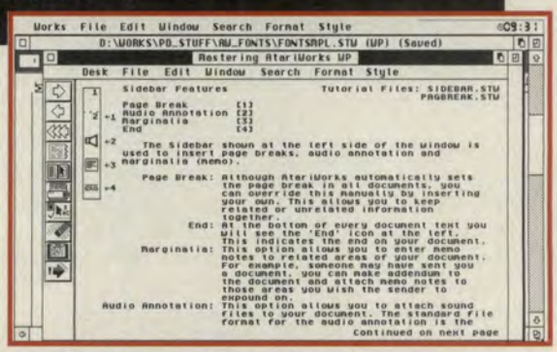


The menus in the Accessory window are duplicates of the real *Works* menus. Selecting an option brings up the helpfile for that menu command, and you can then move through related topics.

ICON DO ANYTHING!

The Icon Bar in the Accessory window is the key to controlling it quickly. Here's what the icons do

- Calls up the index of help topics.
- Clears the current topic from screen and memory.
- Configuration Options.
- Copies the current topic to the Atari Clipboard (usually a folder called CLIPBRD on your boot drive) as a file called SCRAP.TXT so you can paste it into another program.
- Moves backwards one page.
- Moves forwards one page.
- Prints a copy of the current topic to your printer.
- Reloads the last five topics you looked at.
- Returns you to the start of the topic.
- Shows linked topics, if any are available.



The Word Processor help module running with *Works*. The text at the top-right tells you that the tutorial files SIDEBAR.STW and PAGBREAK.STW can be loaded into *Works* to provide further help.

Some of the example files provided are a little, er... unusual! This one shows how a newsletter can be created, even though *Works* isn't a DTP package as such.

Potential

Mastering AtariWorks is a doddle to use and we found that during a lengthy *Works* session it provided the help we needed faster than the actual manual. If you've only just started with *Works*, you'll be able to realise its potential in much less time using *Mastering AtariWorks*, and if you're considering buying *AtariWorks* this is well worth adding to your shopping list. *AtariWorks* is a powerful program and *Mastering* helps unlock its true power.

FRANK CHARLTON

Mastering AtariWorks

£29.95 FaST Club
☎ 0605 455250
ST/TT/Falcon, 512K, hard drive recommended

Highs
- Extremely comprehensive.
- Good index makes finding entries easy.

Lows
- Little support for the Spreadsheet module in this version.
- Takes up two Accessory slots.

78%

Evesham Micros

520ST PLUG-IN 1MB SOLDERLESS RAM UPGRADE

Allows easy upgrade to a total 1Mb RAM • Simple, fast and effective RAM upgrade path • Suits almost any 520ST model (not suitable for STE machines) • Requires no soldering or technical know-how

£49.95

N.B. Due to the large variance in design of the Atari ST, there is a small minority of boards in existence which may require a little soldering.

Panasonic KX-P2123

The *Quiet* Matrix Printer

The KX-P2123 offers quiet operation, Super Letter Quality printing and extensive paper handling features in a reliable and trusted design. A winning combination at an affordable price.

- **Colour Printing** Create colourful, crisp graphics easily by utilising the KX-P2123's choice of 7 vibrant colours.
- **Quiet Printing** Super quiet 43.5 - 46 dBA sound level (most matrix printers are typically in excess of 60 dBA).
- **Flexible Paper Handling** Accepts single sheets, continuous paper, labels, envelopes and multi-part stationery.
- **Fast Printing Speeds** 192cps draft, 64cps LQ and 32cps SLQ.
- **7 Resident Fonts** Create over 152,000 type styles by combining fonts, character sizes and an assortment of enhancement modes. Resident fonts are Sans Serif, Super LQ, Courier, Prestige, Bold PS, Roman, and Script.
- **24 PIN Diamond Printhead** High quality output.

ONLY £186.83

Includes 1 black and 1 colour ribbon

TRUEMOUSE

300dpi RESOLUTION

WE GUARANTEE that this is the smoothest, most responsive and accurate replacement mouse you can buy for your Atari ST. Excellent performance, with a 300dpi resolution. Amazing low price!

£14.99 SATISFACTION GUARANTEED

520 STE 1Mb upgrade (2 x 256k SIMMS)	£14.95
520/1040 STE 2Mb upgrade (2 x 1Mb 9-chip SIMMS)	£100.00
Trackball	£29.95
Joystick / Mouse ports accessibility adapter For STF/STFM/STE machines	£2.95
VIDI-RGB automatic colour separator add-on for colour input	£64.95
Star LC 100	£116.33
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twiddly•bits

Licks and tricks as MIDI Files....

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MIDIGRID

Out of the blue appears a first-rate performance-based MIDI package – and it's being produced in the UK

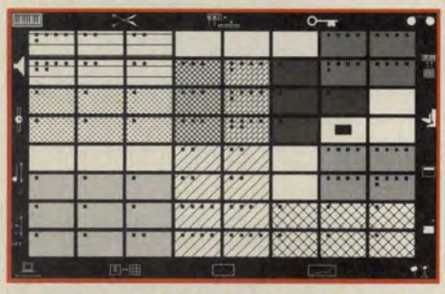
What's so special about a performance-based MIDI program? What it means is that all the preparation can be done at home, with the MIDI program then being used as an instrument to be played at a concert, in the recording studio or just for pleasure. It's when you've set up all the sounds, sequences and effects that the fun really starts.

> **"*Midigrid* definitely breaks new ground and has great potential for expansion and development"**

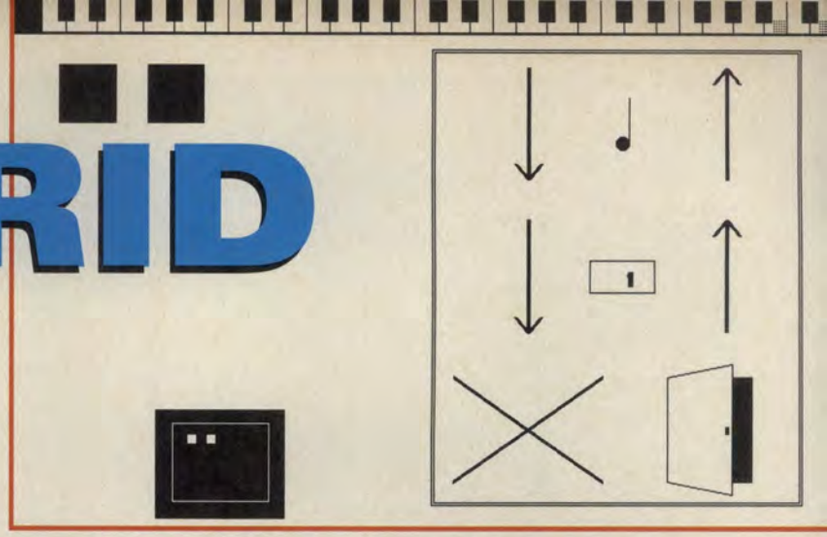
The concept

The main performance screen is made up of a simple grid. You define the number of boxes in the grid and what each box does. Each box can contain a note, a chord, a controller change, a MIDI sequence or any combination of all these things, plus others. Groups of boxes can be assigned to a range of chords on a specific instrument. Another group on the same screen could be assigned to any other instrument.

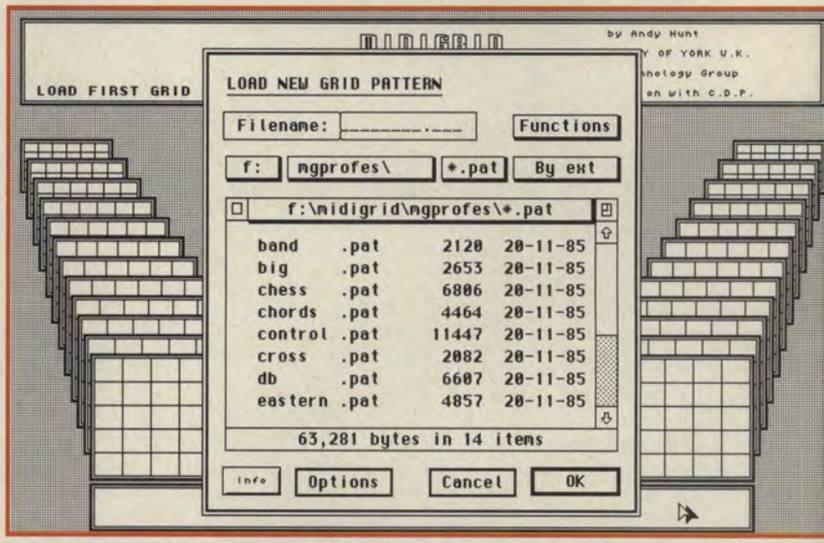
The program makes it possible for you to play things "live" that would be impossible with just a keyboard. Your chords, for example, may contain a greater range of notes than your hands could ever cope with – the possibilities are endless. You can record your performances as sequences within *Midigrid*, then assign these sequences to individual boxes, and once you've built up a finished grid for a piece of music it's up to you to perform with it.



A typical grid might look like this. The different shading patterns show the different instrument groups: the bottom eight boxes in the middle, for example, are a group of powerful string chords in a minor key, while the six boxes above are bass notes and drones. Simply click the mouse button to play them.



Here, the contents of one box are put under the microscope. You can edit how many notes it contains, what pitch they are, and a whole host of other variables. Once you've finished, you can start on the next box.



As the program loads, the file selector appears over the start screen prompting you to select a grid pattern to continue working on. But if you want to begin a new grid, simply click on the Cancel box.

Varied uses

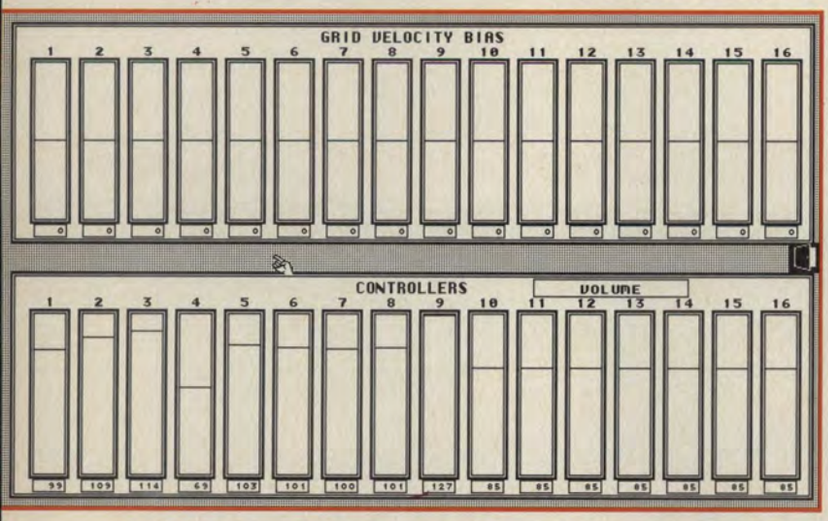
Setting up a grid is a complex and involved operation, which requires extensive knowledge of the program and its logic. However, if a grid has been set up beforehand it is transparently easy and great fun to play. This brings *Midigrid* firmly into the educational arena for almost any group, from those with learning difficulties to gifted musicians. *Midigrid* has a capacity to delight anyone and everyone capable of pointing and clicking with a mouse.

Unlike anything else

Midigrid is an inventive and intriguing package – breaking new ground and offering great potential for expansion and development. The manual is clear and precise, if rather hard going at times. The controls for setting up grids are sometimes quite involved, even fiddly in places, and it takes a few days of working with the program before you start to feel really comfortable with it, simply because the interface is so completely different to everything else.

The program is dongle protected with no through port, so switching is necessary with your sequencer dongle if you have one. Apart from that, it's refreshing to see an innovative MIDI program like *Midigrid* being created and supported in the UK.

ANDY CURTIS



This is the second of the "mixing desk" pages in the program. As well as volume you can control velocity offset for each of the 16 channels. This preserves the dynamic feel of a part by simply adding to or subtracting from the velocity value of each note by a set number.

MIDIGRID Pro

£135 Dawson's Music
☎ 0925 632591
All STs, high res only.

Highs
- Flexible and versatile.
- Instant appeal.
- Very powerful.

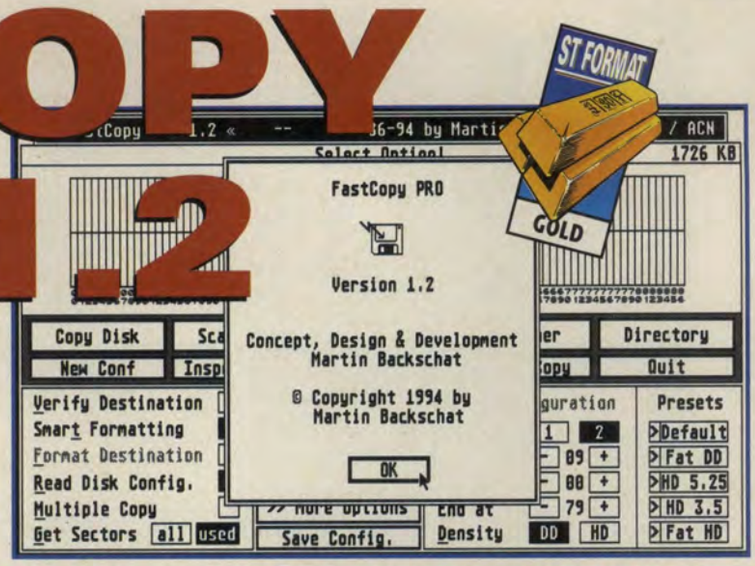
Lows
- Steep learning curve.
- Complex in parts.
- Dongle is annoying.

What else?
- On its own at the moment.

79%

FASTCOPY PRO V1.2

Banish all your floppy problems with *FastCopy PRO*. It's so fast it even has go-faster stripes

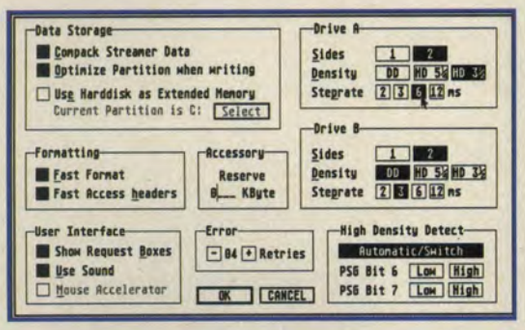


■ As copying occurs, the little empty rectangles representing each disk track fill in: grey as they're being read and black as they're written to.

There you are in the middle of some important work on your ST and you suddenly realise you need a fresh floppy. Reaching for your box of spare disks you grab a new one, but flippin' heck, it's not formatted! So you quit the program, possibly losing data, and sit there like a lemon while your ST chugs its way through formatting the new disk. It's just not good enough.

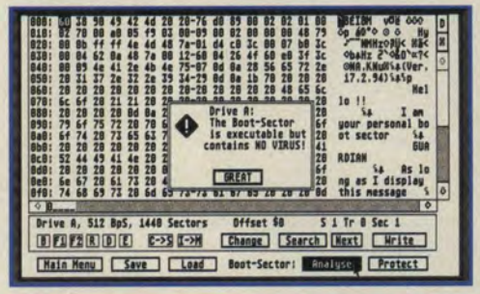
Before you can use any floppy disk you have to format it, and the obvious way is via your ST's Desktop. You might also regularly find yourself copying floppies, when you want to make backups of data or working copies of your serious software *(not* games, of course). Disk copying can also be done from the ST Desktop but, although this fulfils its function, there are quicker and better ways of formatting and copying. Loads of Public Domain utilities exist to provide faster, fancier formats and copying, but one program stands head and shoulders above the rest – *Fcopy*. This started life in the Public Domain *(Fcopy 3* is included on this month's *ST FORMAT* Cover Disk), but its German author has now progressed to *FastCopy PRO*, a commercial version of it, and the latest version – v1.2 – is now available from FaST Club.

FastCopy PRO is supplied on a double-sided disk, together with an A5 printed manual. The program isn't greatly different from v1, but has been upgraded to be fully TT and Falcon friendly, so now it's completely useable on all Atari computers. On the ST it runs in high and medium resolution, and two versions are provided on disk: the stand-alone variant and a Desk Accessory. Copy the DA version to your floppy boot disk or hard drive partition C, and when you next switch on your ST, *FastCopy PRO* will be available from the Desk drop-down menu. It's useful to be able to access all the application's features from within any GEM program, and great if you want to format or copy a floppy without leaving the software you're running.



■ There are tons of other clever options on this second menu, all dedicated to speeding your way through the fascinating foibles of floppy formatting.

When selected, *FastCopy PRO* has a big, good-looking main menu which fills the screen, and further options are available for adjustment in sub-menus which pop up when necessary. What you notice straight away is a numbered track display representing the individual tracks on a floppy disk – as each formatting or copying operation is carried out the empty tracks fill in to indicate progress visually. The standard ST format is 80 tracks, nine sectors per track, giving a total 728,064 bytes of available storage space per disk. If you want more *("You want more, boy?")*, *FastCopy PRO* enables you to specify a greater number of tracks, and up to 11 sectors per track. How many tracks your disk drives can safely handle depends on what make they are, and it's best to try them out with various settings to ascertain the optimum. The most reliable format is 80 tracks and nine sectors, because anybody's system can correctly read disks formatted this way.



■ It's examination time. Discover the delights of determining disk data, skip your way through all its many sectors and even check for virus infection.

Verdict

FastCopy PRO is a most useful utility, and will successfully copy most floppy disks except those that use special tricks to prevent unauthorised copying – for example, games. It also takes less than half the time to copy a disk than the ST's Desktop, and it's one of the fastest and best featured formatters around. Many PD libraries use it for all their disk duplication work, and with its built-in virus protection and ability to do multiple copies this isn't surprising. Its availability as a Desk Accessory and low price make *FastCopy PRO* an almost essential buy for the serious minded ST buff, so snap it up quickly at the special price.

PETER CRUSH

WHAT FASTCOPY PRO CAN DO

Your ST's resident formatting and copying facilities just can't compete with FastCopy PRO. Just look at all the amazing things it can do...

1 Formats disks to MS-DOS compatible, so you can read and write data on them using an IBM PC computer as well as your ST.

2 Formats disks reliably to extended capacities. You can choose how many sectors and tracks you want to optimise your disk's data storage capacity.

3 Copies disks intelligently with great ease and speed. Even on a humble single-drive 520ST system it's a smooth operator.

4 Checks for viruses. *FastCopy* can examine and display disks sector by sector, and you can create special anti-virus boot sectors when you are formatting disks.

5 Streamer feature enables a straightforward backup of hard drive files on to another partition or a set of floppies.

6 Scans your floppy disks, reporting and marking bad sectors to prevent them being used, thus increasing data reliability.

FastCopy PRO does all kinds of other useful tricks too, like helping you to recover data you may have deleted from a disk in error.

FastCopy PRO v1.2

£14.95 (special launch price) FaST Club
☎ 0602 455250

Highs
- Modest asking price
- Fast, reliable operation
- Many extra built-in features

Lows
- None we could find

What else?
- *Fcopy 3*, from any good PD library
- *Kobold*, faster at copying but much dearer – £59.95 from System Solutions ☎ 0753 832212

90%

NOVA GRAPHICS CARD

Millions of colours on your ST? You too can have a top-notch VGA graphics workstation sitting on your desk

■ Nova comes in two parts linked by a pair of ribbon cables. The circuit board slides into the VME socket and the 'black box' contains the actual graphics card.

Your ST's colour capabilities are slightly limited by current standards, but now you can add 16.7 million colours to your original 16 using the new Nova graphics card. Using this card you can really use your ST for graphics and DTP the way you were always meant to: in glorious colour. The Nova hardware and software enables you to set up your ST system to run from a single VGA/SVGA monitor, or with a two monitor setup in which you can use your Atari high-resolution monitor alongside the VGA.

Simple to use...

After installing the hardware and software, re-boot your ST and wait for the Nova menu screen to appear. Select your preferred screen size and palette, ensuring that your monitor can cope with the frequency you've chosen – picking a frame rate that your monitor can't cope with can severely damage it.

After saving the settings your ST automatically boots the VGA monitor to the correct resolution the next time you boot up, and you can use all your GEM software in the usual way. The reason that the Nova card is so compatible with ST software is because it uses a machine code version of your ST's VDI, so it uses exactly the same code for displaying windows as your ST normally does – just a hell of a lot faster.

...and highly compatible

We tested absolutely loads of software on our MegaSTE and most ran without any problems. The only problems we did come across were with memory resident Desk Accessories and Auto folder programs, which tended to crash the ST. Programs we tried and tested include *1st Word Plus, Calamus SL, DA's Picture, DA's Vector Pro, TrueImage* and *Studio Photo*. Of course, all the *Lexicor* graphics software worked without problems.

The Nova card is stunningly easy to use – all you do is install it, then just sit back and use it. No extra hassles. In fact, all software and hardware should be this easy to set up and use. If you want to add great graphics capabilities to your ST to then you know who to call.

CLIVE PARKER

SWITCHING MODES

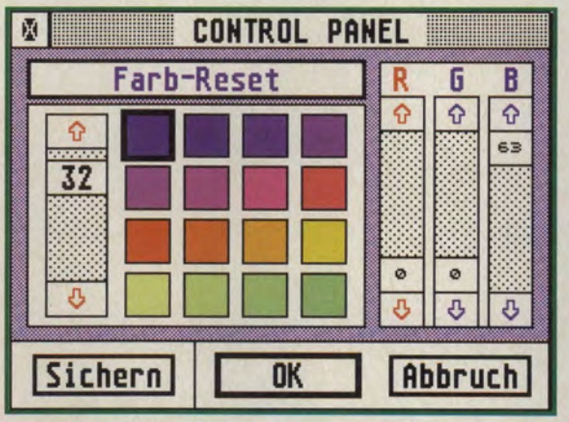
You can swap resolutions either by using the Nova CPX or by setting up a special script file that switches resolutions when you run a specific program. You could set up the script to switch to 320x240x32,000 mode when a true-colour paint program loads, and to switch to 640x480x256 when you run *Calamus SL* – all without re-booting your ST.

■ Take full advantage of the greater screen resolution and the extra colours by getting straight into *GEM View* and loading a few GIFs and JPEGs.

EASY ON MEGAS

You can get plug-in-and-go versions of the Nova card for the MegaST, MegaSTE and TT. If you want a Nova for your STFM or STE, however, you have to use a special Megabus adaptor card. In this case you'll probably have to use a new case like the Desk Topper to house it, because the Nova graphics card itself is too big to fit inside a standard ST style case.

Still, if you're going to be adding the extra graphics power of Nova to your ST then the chances are that you've already got, or are about to get, a chunky business style housing for your ST. Turn to our Custom Computing feature on page 26 for a few suggested alternative cases. The Nova card is a great reason for you to finally splash out and revamp your ST system.



■ The colour setup section is almost exactly the same as the standard Xcontrol colour box except that Nova remembers these settings for you.

Nova graphics card

£419 for MegaSTE and MegaST, call for STE/STFM prices
16/32 Systems
☎ 0634 710788

Highs
- Loads of colours
- Easy to install in MegaST and MegaSTE
- Compatible with almost all software

Lows
- Difficult to install on STEs and STFMs

What else?
- There are no other colour graphics cards currently available

86%

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HP LASERJET 4M PLUS

Laser printing has always been quick, but we discovered the fastest operator around when we tested Hewlett Packard's new machine

HP's LaserJet 4M Plus - the ideal laser printer for business use, and great for home use if you've got plenty of dough (and we're talking major wads here).

They're at it again, those HP backroom boys must be hyperactive! It doesn't seem long ago that Hewlett Packard launched the LaserJet 4 laser printer, and we looked at in *STF* 43 where it was awarded a *FORMAT* Gold score of 90%. There have been a couple of cut-down versions since – the LaserJet 4P and the LaserJet 4L.

But not content with that, two brand new versions of the top-of-the-range model have just been released, and HP claim these have better features and improved printing speed. So are the new machines really any better or speedier? We got hold of one of the first available for testing – read on for our results.

And there's more

The HP LaserJet 4M Plus doesn't look much different from its forerunner, but hiding inside is an Intel i960 chip. This works at 25MHz and has its own memory cache, resulting in an impressive turn of speed, and increasing the number of pages you can print from eight pages per minute to 12 per minute. The printer comes with 6MBytes of RAM on board as standard, which is plenty for most uses but can be increased with slot-in SIMM cards if you want more.

The "M" in the printer's name stands for Macintosh, and it works with Apple's Mac computers as well as STs. It also has a built-in capability to print PostScript, the page description language widely used in professional publishing circles. If you think all this makes HP's new printer sound rather up-market you'd be right, it really is a very capable and businesslike device indeed. To cater for those folk who don't need PostScript and want something more affordable there's the slightly cheaper LaserJet 4 Plus. This second new printer has no PostScript and only 2MByte of RAM, but can be upgraded to "M" standard with optional cards.

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The 4M Plus: smoother than Stephen Fry in that Heineken ad. Quieter than the voiceover in the Mazda ad. More reliable than a Volkswagen in the... *(Sorry, but this is getting silly - Trenton).*

Both versions of the new printer come with loads of built-in scalable fonts – there are 35 *Intellifonts* and ten *TrueType* fonts on board. If you have software that supports these fonts (like Compo's *That's Write 2*, or Arnor's *Protext 6*) you can very quickly produce impressive word processed documents with wording in a wide range of typefaces and styles, and in virtually any size you want. Because the font information is held in an outline "vector" format inside the printer itself, output is brisk. If, however, you are using desktop publishing software like *Timeworks Publisher* or *Calamus* your pages are output as bitmapped images.

Even so, the text still looks good, owing to the printer's 600 dots per inch resolution. However, the whole affair takes much longer because of the amount of data that has to be sent down the printer lead.

Fastest time ever

To try the printer with word processed textfiles we used both *Protext 6* and *That's Write 2*. The results were excellent – you won't get better looking printing unless you use typesetting apparatus. To test DTP output we used *PageStream*, which can output conventional bitmapped files and PostScript, and again results were first class. The 12 page per minute printing enables you to turn out lots of copies quickly but the time taken to create and send the page to the printer is still limited by your ST's own processing speed, so don't expect miracles in this department.

Verdict

Even so, the *ST FORMAT* test page took just under 27 seconds to print out from *Protext*, the fastest time ever clocked. From *PageStream 2*, a DTP page of text and graphics took less than two and a quarter minutes to produce. And subsequent copies roll out every five seconds if required. The LaserJet 4M Plus is not a cheap printer, but it's probably about the best specified one you can buy.

PETER CRUSH

Technical details

- Fonts: 45 scalable fonts, any size between 0.25 and 999 points.
- Language: HP PCL Five enhanced, backwards compatible with any LaserJet printer.
- Memory: 6MByte on LaserJet 4M Plus, 2MByte on LaserJet 4 Plus.
- Options: 500 page feeder. Duplexer enables printing on both sides of page.
- PostScript: Level 2 PostScript. 4M Plus – standard; 4 Plus – optional.
- Print speed: 12 pages per minute on both models.
- Resolution: 600x600 dpi plus Resolution Enhancement Technology.

HP LaserJet 4M Plus

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MUSIC

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Waaay back in the mists of time, on an utterly different machine to the one we're on now, there was a simple way to rip the *Blue Danube* out of *Elite*, and leave it running in the background while you got on with programming, word processing, or whatever. This had to be one of the silliest uses of that particular machine given the utterly naff sound chip, but everybody tried it at least once.

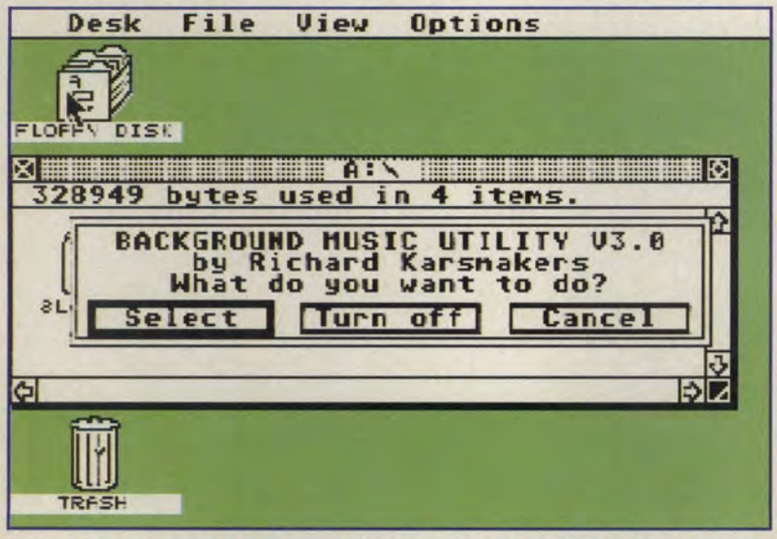
And then there was the ST, and games that were a little more difficult to hack into and mess about with. Think about it – you've got the ultimate machine for creating music, and you can't word process and jive at the same time.

BMU is a a simple but brilliant Desk Accessory that sits there and happily plays up to 58 tunes, regardless of what your machine is doing. Oh joy – it's pointless, it's mindless, and I've got a copy. Life is good, if almost fatally close to jazz.

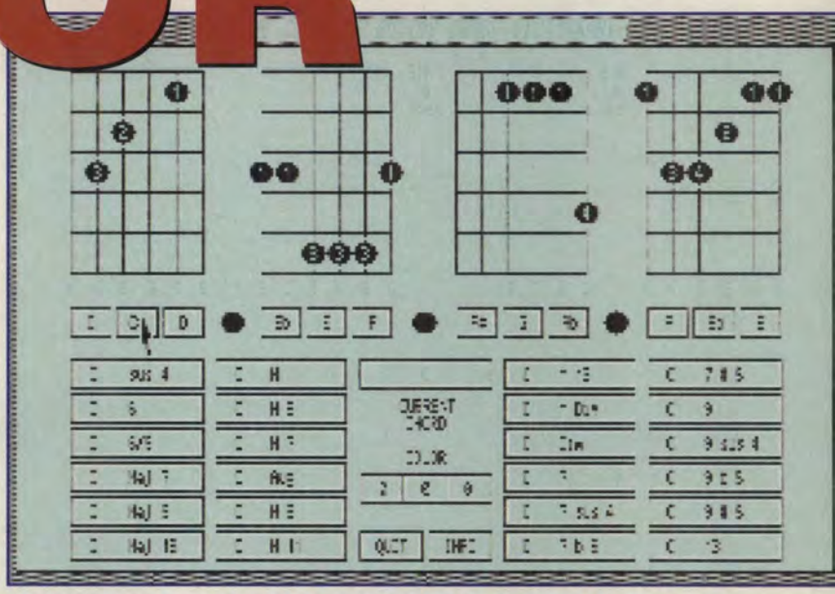
The music isn't exactly wonderful either – it ranges from national anthems through the *Camptown Races* to the *Blue Danube*, all in a lovely plinky style and played on what ever instrument they thought they were simulating when they wrote the tune to *Pole Position*.

That's the point of having a machine with an Accessory facility – you can modify it to do whatever you want. If anyone else has got any his type of thing, send it our way. We flippin' love 'em.

***STF* RATING 70%**



■ The welcome sight of a dialog box after the sudden shock of terror as you realise you're not altogether sure how to turn the *Camptown Races* off.



■ Now you need never be stuck for a guitar chord again, ever. All you've got to do now is learn to play guitar (and lose your ability to see in colour).

GUITAR CHORD UTILITY

FLOPPYSHOP MUS4382

Now here's one you don't see too often. *GCU* is a utility that displays all of the major chord structures you're ever likely to need while learning to play the guitar. On loading the package, you're presented with a set of buttons, giving the various base chords and the variations on them (diminished, minor, rooted and so on), each in four different inversions, giving you a hell of a lot of scope to work around those chords.

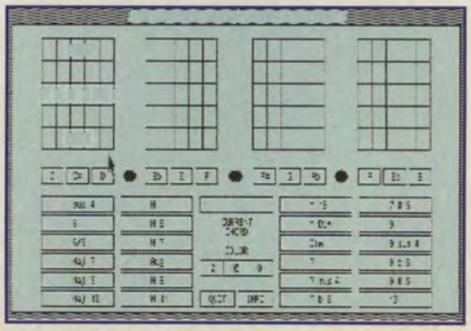
The important element here is that your ST isn't just helping you create wonderful sounds on an electronic instrument. The way the chords are presented not only makes them easy to understand and hit, but also incredibly easy to work around – the inversions mean you can fit almost any riff around any chord with no hassle at all.

At the end of the day, these functions could be fulfilled with a chord book such as the *Guitarist's Grimoire*, but if you don't own such a wondrous item, you can now get a computer program to work just as well.

Tacked on to the side (almost as an afterthought) is a guitar tuner, though this works by simply playing the correct pitch on demand in a computer-ish beep style, which turns out to be almost impossible to tune a guitar to – the two sounds are entirely different. Apart from the fact that it's nearly useless, the guitar tuner is cursed with another problem – it won't leave you alone. You'll be happily chording away, and all of a sudden, for no easily understandable reason, everything stops and you get the chance to tune up again. Why? How close do I want my sound to be?

Don't let an obtrusive tuner put you off a potentially wonderful Shareware package, though – it'll be invaluable to anyone learning guitar and makes the change for the ST by actually helping you create well-written music on something other than an electronic instrument.

***STF* RATING 75%**

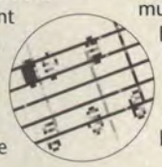


■ It's the tuner. It came back. I selected Quit, and it gave me the tuner instead. Aaaaargh.

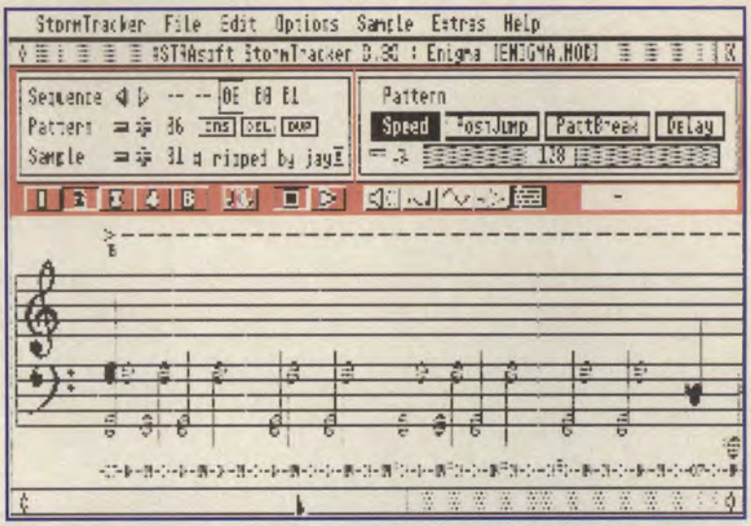
STORMTRACKER

ASGARD PD

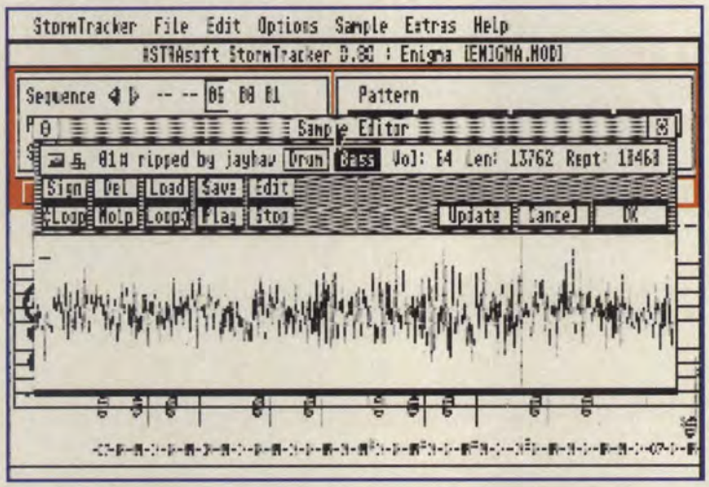
It's been a seriously musical PD section so far, hasn't it? It's not surprising that the PD market would pick up on the commercial bend toward notes, but it's quite surprising just how well they've done it. Gone are the days of shelling out huge amounts of cash for a soundtracker program just to find that you have that you have no musical talent whatsoever. Now you've got a completely free trial arrangement thing. That's right, it's Shareware, which means you get to sample the whole thing before you shell out any cash for a full working version.



If you've never seen a soundtracker program before you're not going to be all that surprised, as they're exactly as you'd expect them to be – long lists of notes that you define and the program plays. Things do start to get a little more complicated when you enter your tune, though, as some packages work on musical staves rather than simple lists. *Stormtracker* works with both, so you won't need to suffer musical boffins preaching the benefits of arcane symbols – just go to Preferences.



■ Do you remember that *Pink Panther* cartoon with the Pink Panther himself trying to play piano while a little fly masqueraded as musical notes on his sheet music? He swats the fly, who avoids the potentially lethal swatter and does it again, with hilarious consequences. Laugh? I nearly died of boredom.



The curious thing about *Stormtracker* is that you don't use instruments created from sound waves. The package has built-in sampling facilities which are combined with a rather clever system for bending the pitch of samples to hit the desired note – meaning that you can sample a guitar and move it around the musical scale to create a tune, then overlay some drum samples and a bass.

■ But *The Pink Panther Show* was never particularly funny, was it? They used to show those *Crazy Legs Crane* cartoons in between the other stuff, and they were head-crunchingly dull as well.

As a package, *Stormtracker* is wonderfully comprehensive. You'll constantly be aware that you're not using a commercial piece, but most of what you're likely to want to do is catered for.

***STF* RATING 70%**

UTILITIES

GB ROUTEFINDER

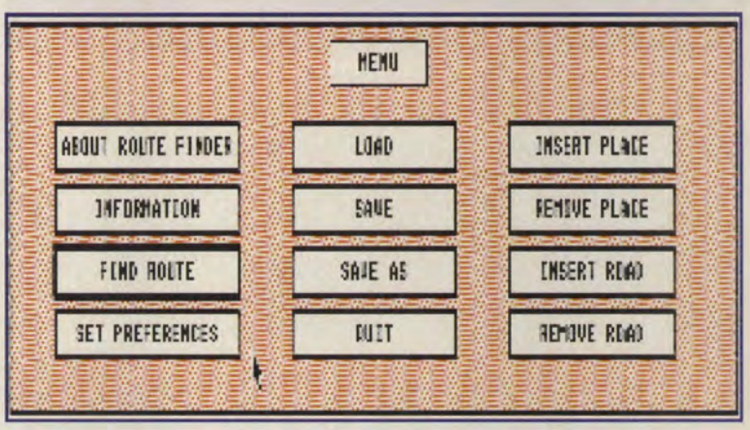
ASGARD PD

Ever met a PC owner? They're all nice people and all that, but five years ago the experience would have been horribly marred by the fact that just about every one of them was either saving up for or had already bought a copy of *AutoRoute*.

It was the PC craze – if you could write a program that worked out the best way to get from A to B in a car in Britain, you could sell it on a PC for huge amounts of money, because a route finder is one of the cleverest utilities known to man.

GB Routefinder is no exception, although this time it's PD, and it's on your ST. For example, suppose you live in an attractive, thriving city like, oooh, Leicester. You, not surprisingly, want to go somewhere else, and you'd like to get there fairly fast, and not spend hours staring at a road atlas. Load up *GB Routefinder*, tell it where you are and where you want to go, and wait for a minute or so while it works out the best route.

Of course, you wouldn't trust a computer to give you a route you could handle, would you? There are certain places you'd really want to avoid travelling through, like London and Newalk, and certain roads you'd never want to get trapped on (the M25). *GB Routefinder* can handle the lot, carefully getting you to Cardiff while ensuring you spend as little time as possible in the rest of Wales.



■ You may just shrug your shoulders at a route finder program, but just remember that some poor soul had to actually sit down and enter in details for every single road and town in England, Scotland and Wales...

FROM LEICESTER TO BATH

FROM	TO	MILES	ROAD	AC
LEICESTER	M1 J21	4.0E	A46	
M1 J21	M69 J2	7.0E	M69	*
M69 J2	M69 J1	3.0E	M69	*
M69 J1	M6 J2	6.0E	M63	
M1 J2	A45 A46 E JUNCTION	4.0E	A45	
A45 A46 E JUNCTION	A45 A46 W JUNCTION	2.0E	A45	
A45 A46 W JUNCTION	A46 A452 JUNCTION	4.0E	A46	
A46 A452 JUNCTION	M40 J15	5.0E	A46	
M40 J15	A429 A422 JUNCTION	8.0E	A429	
A429 A422 JUNCTION	A429 A3400 JUNCTION	3.0E	A429	
A429 A3400 JUNCTION	MORETON IN MARSH	9.0E	A429	
MORETON IN MARSH	STOW ON THE WOLD	4.0E	A429	
STOW ON THE WOLD	A40 A429 JUNCTION	9.0E	A429	
A40 A429 JUNCTION	CIRENCESTER	10.0E	A429	
CIRENCESTER	A429 A433 JUNCTION	2.0E	A429	
A429 A433 JUNCTION	TETBURY	7.0E	A433	
TETBURY	A46 A433 JUNCTION	8.0E	A433	
A46 A433 JUNCTION	A46 A432 JUNCTION	4.0E	A46	

On top of the excellent avoidance feature, you can select routes on the grounds of distance or time. On entering your details, you're asked whether you need the shortest route or the quickest one, which changes the details you're presented with.

■ ...so in appreciation of all the hard work the programmer put into the map, would everyone reading this to take a few minutes to snigger loudly at the poor sod. Thank you.

This is an incredibly useful package, and it's rather surprising that it's free. There are options to add extra roads, places, and so on as well as to create entirely new maps (anyone feel like knocking up *USA Routefinder?*).

All we can say is, if you don't send off for *GB Routefinder*, you obviously don't own a car.

***STF* RATING 80%**

PROFESSOR CLEVER

ASGARD PD

Everyone knows the story. A nation of cunning children convincing their parents that buying an ST would be perfect for running educational software, improving hand/eye co-ordination, familiarizing them with technology, keeping home accounts, and would be great for homework. Well now it's time for that education they were talking about.

Professor Clever is an educational package for five to seven year olds. It covers three main skills; arithmetic, spelling and telling the time. As well as the three skills, you'll find a play section that actually seems geared much more towards building reflex and logic skills than it does toward having any fun.

First comes arithmetic, and five separate tests of addition, subtraction, division, multiplication and counting. Things are very straightforward in this section – the child is simply asked to add up numbers or whatever, or count the total number of objects on the screen. The problem comes when the child's attention wanders – there is no reward for a correct answer, and nothing to say, "OK, well done, here's the next one." Instead of encouraging the child further, the program just asks the next question with all the charm of a Nazi interrogator playing poker. This is not what children need.

The next section deals with spelling, asking questions like "What animal goes meow" (notice the lack of a question mark), and answering with the constructive "Wrong the answer I wanted was..." (all one sentence, mind). The program doesn't work with anything other than pidgin English – what if your kiddy makes a huge leap and types in "a cat"? He or she gets "Wrong the answer I wanted was cat," straight in the face. That's nice. They'll really be encouraged with that one.

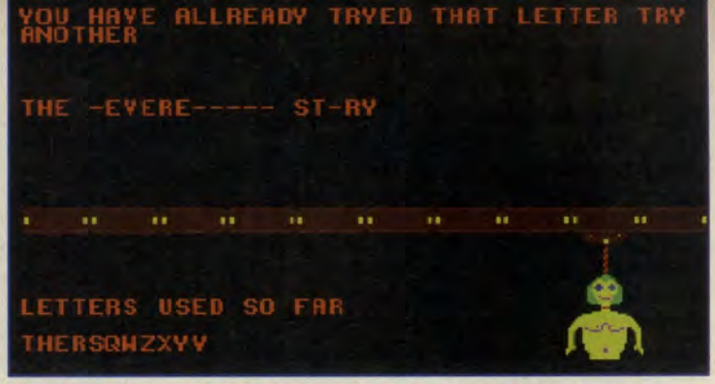
Telling the time is all much of a muchness. Despite the fact that this is an important part of a child's learning, they don't get even the slightest bit of encouragement. Mind you, this section just falls into line with the rest of the package, really.

And then there's playtime. Ooh, goody. There are a few reasonable kiddy games here, you see, such as skeet shooting with a mouse (and an AK47 by the sound and speed of it), a sort of real-time *Daleks* thing, pairs, and finally *Hangman* which is where we take time out. *Hangman*. A game involving spelling. After picking the films category (ignoring books and TV programmes) you roll on to the main game screen, seeing a noose and a set of blanks. They can't get this one wrong, surely. Surely?

Hangman's a great game – everyone loves it. On a train, in a plane, wherever, it's *Hangman* and it's good. Before you play, however, it's always a good idea to make sure the person you're playing against can actually spell. Sorry, but if you were trying to teach a child to spell (hidden curriculum, perhaps?) you wouldn't try and tell them that trains is actually spelt "traines". Then again. And exactly are they going to learn from a sentence like: "You have allready tryed that letter try another?"

What more can you say? This is the kind of educational package that could do real damage to a five year old. This whole thing has obviously been written by someone utterly out of touch with education and children alike. How many PE teachers do you think own STs?

***STF* RATING 10%**



■ Love that spelling. If Simon had been given the benefit of packages like this during his formative years, he'd have been locked up by now.

■ Telling the time. This needs the keys 5, P and 8 before it'll grudgingly credit you and give you the next question.

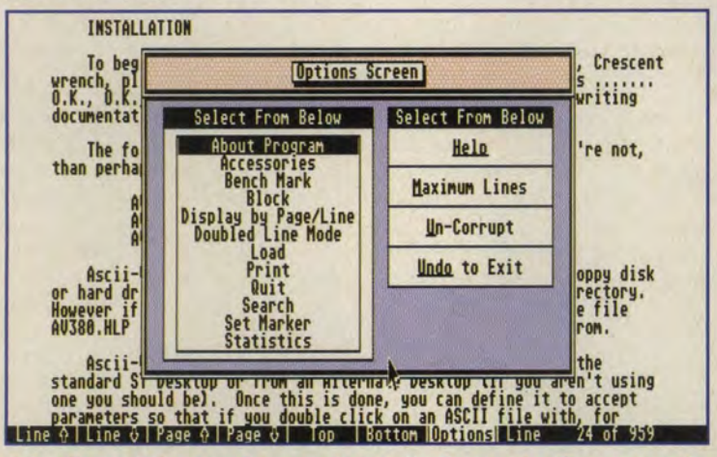
ST APPLICATIONS DISK MAG 40

FAST CLUB DISK DM.40

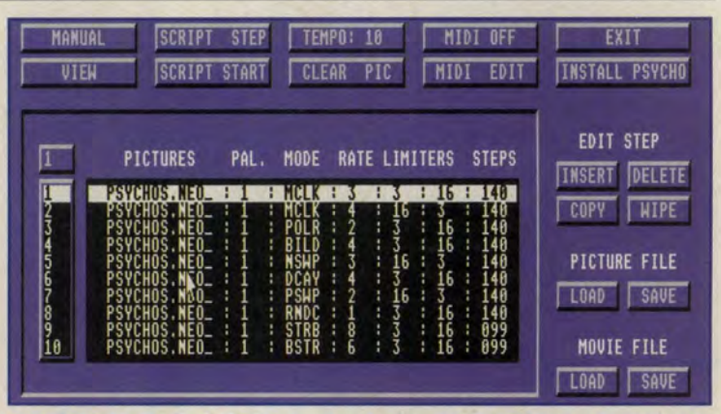
Another packed disk from the FaST Club to complement the latest issue of *ST Applications*. As always, the files on this disk are all archived so more can be crammed on the disk. The best programs from a good bunch include a route finder program, *LHarc-Shell*, a shell for running multiple archive programs called *2-in-1* and an excellent document displayer attractively named *AV380*.

For such a compact program, *AV380* has an impressive range of functions and features including a powerful search utility, full document statistics, program statistics, access to Desk Accessories all supported by a full on-line help system. It's worth getting the disk magazine just for this program alone.

***STF* RATING: 83%**



■ Scrolly text in its many forms tends to cause disputes in offices across the land. What? Oh, yes. *AV380* is a great little text viewer.



■ And this is where all that brain-churning image manipulation is generated, the *Psycho Script* editor in all its bum-numbing ordinariness.

PSYCHO SCRIPT

FLOPPYSHOP DISK ART.4543

Welcome to weird city folks (as they say in *The Sun)* and take a look at the strangest little program it's been our pleasure to view – it even carries a stern warning to sufferers from epilepsy to avert their gaze. *Psycho* enables you to create stunning visual displays from standard *Degas* or *Neochrome* image, which it does by colour modulating the pictures and sequencing the effects into a dynamic psychedelic slide show. Fnerk! Understand all that? We didn't. The upshot of all this technical wibble is that you can create a sequence of stunning visual imagery on a standard ST using the *Psycho Script* program and controlled – if you want – by MIDI messages and signals alongside your script file. Detailed instructions ensure that you'll soon be freaking out to the greatest ST lightshow since Jeff Minter's legendary *Colourspace*.

***STF* RATING: 78%**

DESKTOP ICONS

FAST CLUB DISK UT.201

It may not sound particularly interesting or seem to be that useful, but this disk is crammed with file icons you can use with TOS 2.06, TOS 3.06 on the TT, TOS 4.01 to 4.92 on the Falcon030 *Neodesk* and the Gemini replacement Desktops. With over 1MByte of different file icons you're sure to find an image to suit any type of file you may have on your disk collection. You do need a separate program to make use of the icons and include them as part of your usual DESKICON.RSC file on your boot disk – *Icon Juggler* from Cover Disk 47 is ideal for this purpose. If you haven't got Cover Disk 47 then there is an excellent resource file editor included on the icons disk called Orcs, it's a bit harder to use than the *Juggler/MakeIcon* combination but you can certainly come up with some wild designs.

STF RATING: 72%

■ You can use *Icon Juggler* to cut and paste icons between all the different icon files on the disk and create your own customised DESKICON.RSC files.

TINY PILOT

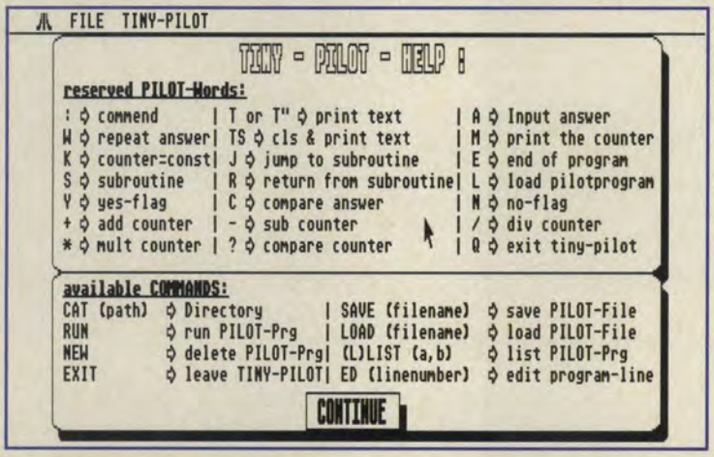
FAST CLUB DISK PR.205

Not a disk concerning very small aeroplane drivers, *Tiny Pilot* is in fact a small interpreter dealing with Programmed Inquiry Learning Or Teaching and is a kind of programming language. Using this interpreter you can create customised programs designed to teach the user about any subject you wish, anything from cataloguing moon rocks to learning a foreign language. A large and well written document file clues you up as to the commands of the PILOT language and there's a demonstration PILOT program listing supplied consisting of a handy German to Spanish vocabulary trainer. Hmmm.

Still, with a bit of practice you can soon start producing some reasonably competent training programs of your own. It's one of those programs that's almost very good.

STF RATING: 63%

■ A fully featured on-line help facility enables you to cope with all of those strange PILOT commands such as "flaps at 30 degrees" and "raise undercarriage".



PPS PART 1

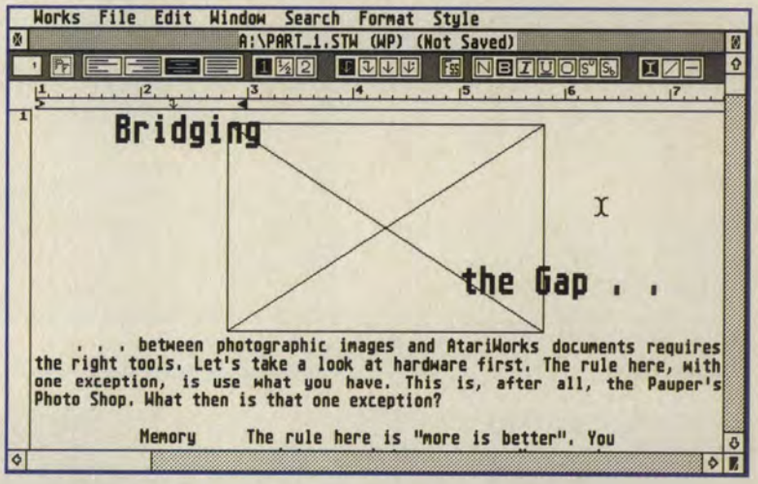
GOODMAN INTERNATIONAL DISK GD2252

Ah, yes. There isn't actually a program at all on this disk; the whole disk consists of a document for *AtariWorks* showing off the capabilities of Atari's flagship word processor-cum-integrated 'works' productivity program.

In fact, the entire disk is an *AtariWorks* tutorial complete with loads of grabs in various high-resolution formats, explaining how to get the most out of the program using various design layouts. Unfortunately, you can only use this disk if you already have *AtariWorks* as part of your system so the disk is of limited interest. That said, there are some helpful and informative hints and tips contained in the text that should certainly help you improve your layout and design skills. Planned as the first of a series of tutorials, this isn't a bad little disk.

STF RATING: 56%

■ Yyyyeeesssss. An interesting and informative disk that's the first in a series on using *AtariWorks*. We can't wait for the second part.



THE *ST FORMAT* PD DIRECTORY

16/32 PDL, 173 High Street, Strood, Kent ME2 4TW ☎ 0634 710788
A-ONLINE ATARI CEC, 1229 East Mohawk Avenue, Tampa, FL 33604 USA ☎ 010 813 237 1656
AQUILA, 190a Mackenzie Road, Beckham, Kent BR3 4SF ☎ 081 778 00844
ATARI USER GROUP(SCOTLAND), 9/3 North Hillhousefield, Edinburgh EH6 4HU ☎ 031 553 1288
AWF PDL, 123 Hazelwell Crescent, Stirchley, Birmingham B30 2QE ☎ 021 458 4345
BALSALL PD, 6 Rushton Close, Balsall Common, Coventry CV6 7PA
BLYTHE PDL, Copes Farm, Withington, Leigh, Stoke on Trent, Staffs ST10 4PU
CHAOS PD ☎ 0296 89059
CALEDONIA PDL, 250 Oldtown Road, Hilton, Inverness IV2 4PT ☎ 0463 225736
DIGITAL DISK, Steve Hill, 85 Ceres Road, Plumstead, London SE18 1HL
EMERALD CITY, PO Box 28, Southhants SO9 7HS ☎ 0703 672577
FALCON OWNERS GROUP, 10 Oak Drive, Portishead, Bristol, Avon BS20 8QS ☎ 0275 843241
FaST CLUB, 2 Broadway, Nottingham NG11 1PS ☎ 0602 410 241
FERDY BLASET, Halleyweg 114,3318 CP Dordrecht, The Netherlands ☎ 010 3178 172 879
FLOPPYSHOP, PO Box 273, Aberdeen AB9 8SJ ☎ 0224 312756
GL-PD 62 Colwyn Ave, Winch Wen, Swansea SA1 7EJ ☎ 0792 799762
GOODMAN PDL, 16 Conrad Close, Meir Hay Estate, Longton, Stoke on Trent, Staffs ST3 1SW ☎ 0782 335650
LAPD, PO Box 2, Heanor, Derbyshire DE75 7YP ☎ 0773 761944
MAGNETIC FIELDS, PO Box 118, Preston, Lancs PR2 2AW ☎ 0772 881190
MERLIN PD, 11Grange Close, Minchinhampton, Stroud, Glos GL6 9DF ☎ 0453 882793
PD4U, 4 Sintonville Avenue, Belfast, BT5 5DG ☎ 0232 672338
RIVERDENE PDL, 30a School Road, Tilehurst, Reading, Berkshire RG3 5AN ☎ 0734 452416
SDPD c/o Stephen Day, 11 Allington Mead, Bridport, Dorset DT6 5HF ☎ 0308 427179

BUYER BEWARE

Any library included here does not imply that *ST FORMAT* endorses or recommends any of them in any way. If you run a library not listed here and wish to be included, or if you want to amend anything, send details and your latest catalogue to: PD Library Directory, *ST FORMAT*, 30 Monmouth Street, Bath, Avon BA1 2BW.

FALCON PD – ALL OF IT!

Simon Forrester sifts through hundreds of Falcon-specific PD software titles. Yes all of them!

The easy way to tell a new machine's popularity is by the selection of commercial titles available for it. When the Falcon came along, a sudden burst of feverish writing came from other sides as well, creating a huge amount of PD software in a very short amount of time.

So here at *ST FORMAT*, we have decided to give you a run down of pretty much every piece of PD software that's ever been released on the Atari's top-of-the-range machine. Every piece of software featured on these pages comes courtesy of 16/32 Systems, who provide probably the biggest PD service in Europe as far as the Falcon's concerned.

Although each piece of software has been reviewed individually, each title has been followed by the disc number in brackets. As for ratings, each package has been marked out of five, as percentage scores become meaningless on this kind of scale.

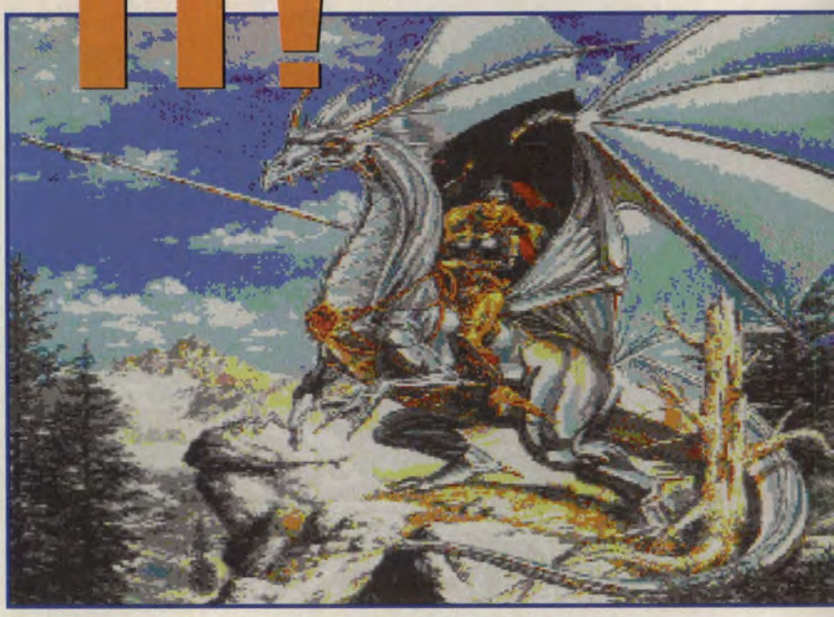
Anyway, without further ado, let's decrunch some TOS files and see what we can find.

FRAC030 (1)
A fairly fractal drawing package, although a little infexible at times. ☆☆☆

BRAINSTORM JPEG VIEWER (2)
Hellishly impressive, mainly due to the abilities of the Falcon anyway. Ultimately pointless, though. It comes with several discs of slide-show JPEG files, getting boring after the 20th and deadly by number 97. ☆☆

VIEW 24B (2)
A tiny little application enabling you to jut double click on any Targa or Raw 24-bit image and view it. Filling the gaps Atari left behind. ☆☆☆

WATCH-IT (2)
Watch-It is a picture viewer enabling you to... look why are there so damned many picture viewers? How can one be any better than (or even different to) another? You click on a picture, and you can view it. Some work as accessories, some as applications, but they all do exactly the same thing. What's the point? ☆



■ Hang on a minute. No, slow down. Do stop bucking. Stop a second will you? Let me get a closer look. Thought so. I know him.

■ The circus is coming! Lots of scary people painting their faces in evil patterns and being waaaay too cheerful are coming to your neighbourhood.

■ Rave the Christmas. Something tells me they've worked out what Santa gets up to for the other 364 nights of the year. Don't let him near your kids.

24 VIEW 2 (2)
A picture file viewer, yes. ☆☆

GEOTECH (2)
A storming little demo of fractal landscapes generated incredibly quickly and displayed from a number of angles. ☆☆☆☆

PIXTWINS (2)
Here we go again – more of the same. A picture viewer. You can view pictures. Click. Look at a picture. Ooh. ☆

FM (4)
There comes a time when everyone needs to write a demo. This one falls into the rave variety, with two amazing visual moire effects. ☆☆☆☆

TUBULAR BELLS (5)
An excellent demo of the Falcon's capabilities, though it's appallingly mixed. ☆☆

HANDS (6)
James Brown fans can jive to the looped 30-second sample accompanied by some very funky animations. ☆☆☆☆☆

SPERM (6)
Though cursed with a slightly off-putting title, this is a rather impressive little spermfield demo. ☆☆☆☆

RDE (7)
You can now have RAMdisks of any size on your Falcon, speeding up disky operations no end. ☆☆☆

ATOMIK CRUNCHER 3 (7)
A file crunching program with reasonable compression rates. ☆☆☆☆

16/32 DISC 7 TEXT FILES (7)
A range of text files covering everything from your Falcon's casing inwards. ☆☆☆

EDISON (7)
A screen-saver that saves you from certain phosphor-burn death. Everyone should have one. ☆☆☆☆

FCONTROL (7)
A control panel to do all those things GEM should do but doesn't. ☆☆☆

SNAPSHOT (7)
Take a wild guess. ☆☆☆

JML SNAPSHOT (7)
There's nothing like new, innovative programming, is there? ☆☆☆

BULLDOZER (7)
A copier – an essential item for any computer user. ☆☆☆

DFT (7)
Yet another copier, only this time it's complete crap.

DISK COPY (7)
A copier – an essential item for any computer user. ☆☆☆

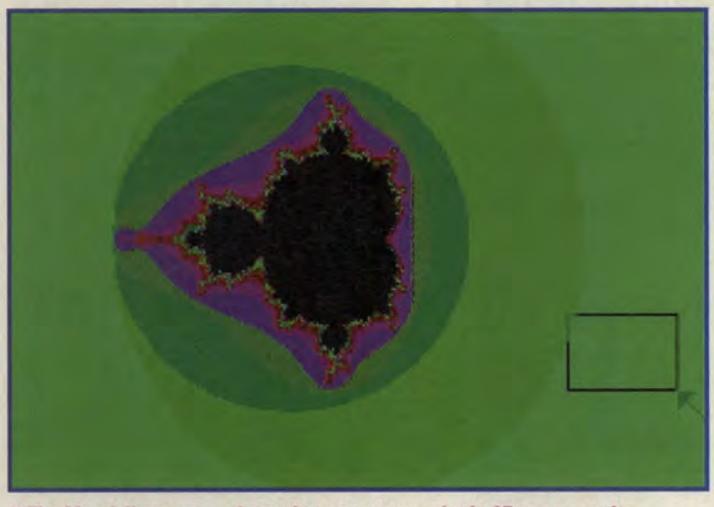
FROGGER (9)
Frogger. glad to see we're using the Falcon to its best abilities. ☆☆☆

KABOOM (9)
Dull bomb catching game. Reminiscent of stubbing your toe. ☆

BIG KART (9)
Mario Kart without the pressure. ☆☆☆☆

OXYD (9)
A wonderful pairs puzzle game. ☆☆☆☆☆

SPACOLA (9)
An *Asteroid-cum-Defender* clone, from the *Oxyd* author. ☆☆☆☆☆



The Mandelbrot set, a shape that can never exist in 3D space, as its perimeter is infinite and infinitely detailed, though it has only a finite area.

ECOPY (7)
A copier – an essential item for any computer user. ☆☆☆

LITTLE COPIER (7)
A shameless attempt to dress up a file copier with personality. It worked. ☆☆☆☆

VIEWXXGA (7)
Now this just isn't... No... Kiss the midget. ☆☆☆☆☆

WINREC (8)
An audio-to-hard-drive recording system, put to best use by anyone with a good knowledge of German. ☆☆☆☆

AUDIO 12 (8)
An utterly unfathomable little German dialogue box. It could be the best program in the world, but, then again, it might be complete shash. Who knows? We're certainly not about to find out.

F030 PLAY (8)
Sound module player – sounds good, despite the lack of features. ☆☆☆

PERSISTENCE OF VISION DEMO (10)
It's *Persistence Of Vision*, isn't it? ☆☆☆☆☆

PROGRAMMING UTILITIES (11)
Loads and loads of text files and assembly listings to keep you coding through the night, and suffering eye strain through the day. ☆☆☆☆

FRAC PLAY (20)
Playing about with fractals is probably the most fun you could have with a keyboard. ☆☆☆☆

These fractal shapes are supposed to be very life-like, so where are the tourists?

DES LASERS ET DES HOMMES (12)
The demo version of a forthcoming *Wolfenstein* type game. Truly excellent, and stupidly violent. ☆☆☆☆☆

MADTRISS (12)
Tetris. The kooky version. Gah. ☆

BOBS (19)
A slick little demo, with a highly enjoyable soundtrack. ☆☆☆☆

BOUND (19)
Bouncing balls of flesh from a highly conceited coder who gives his address for anyone wanting to send congratulations. Pah. ☆☆

MASTERS OF CHAOS (12)
A novel but dated *Dungeon Master* style two-player duel. ☆☆☆☆

680XX (20)
Another demo, this time as a still frame with yet another excellent soundtrack. ☆☆☆

DREAMS (20)
One of the best examples of the Falcon's graphical capabilities to date. ☆☆☆☆☆

3D ANIMATOR (20)
It's official – this is the best bit of Falcon PD ever seen. The smoothest animation of 3D light-sourced objects ever. ☆☆☆☆☆

CHLOE (20)
A rendering package, cursed with a language barrier. Damned shame, as it's quite good. Has anyone thought of offering translations? ☆☆☆

D2M (20)
Probably the most comprehensive image conversion package. I could be more certain, but it's dull. ☆☆☆☆

GEMTARGA (20)
Kiss the midget. Kiss the midget. I can't see – get a haircut. ☆☆

IFFHAM 8 (20)
Get him. Get him. ☆☆☆

It's sociological fact that every house has a picture like this, shoved in a box with the spiky wall clock.

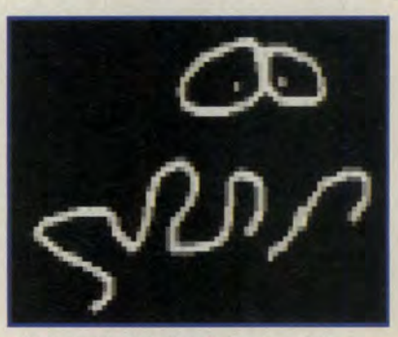
JPEG (20)
Join us. Be one of us. Stand tall at the gates of Ni. ☆☆

MOVIE 100 (20)
A totally fun little movie-playing Desk Accessory for FLI files. ☆☆☆☆

BIG KART (21)
It's *Super Mario Cart* for the Falcon! Again! ☆☆☆☆☆

EKO (21)
The *Extremely Kriminal Organization*. A horrible rasping little tune. Die in dyslexia hell. ☆

GOURARD 2 (21)
An excellent demonstration of well-programmed Gourard shading. ☆☆☆☆



A frame of mutating line animations from the excellent *Hands* demo.

INCONVEX (21)
Further shaded 3D objects, though something doesn't seem quite right with this one, perspective-wise. ☆☆

MAGNET (21)
Another demo, this time drawing and animating magnetic patterns. ☆☆☆

PENICHE (21)
Dancing oil-tanker antics. ☆☆☆

PLAY FLI (22)
A simple French FLI player on a disk with several good animations, the best being 3Wheel, 6C0VL, Alarm Clock, Apple, Art, and BBall. ☆☆☆☆☆

BIRD (23)
Another excellent FLI animation. ☆☆☆☆

THE COLA WAR (24)
A fun little animation about the cola war, scoring 4 for making me laugh. ☆☆☆☆

GIANT (25)
On a disk with still more FLI files you'll find *Giant*, an ad for Cyclops BBS. ☆☆☆☆

It's at this point that we step back from the pile of PD, pausing only to consider another three disks of FLI files. The thing about FLI files, you see, is that they'll only ever be FLI files. Each one has reasonable animation, and each one is ultimately repetitive and therefore dull. In fact, we're going to skip straight past the lot of them in search of something more comment-worthy.

DELUXE MJUZAKK ZERBASTEL KIT (31)
A fairly decent soundtracker with good sampling facilities. ☆☆☆

PROTRACKER (31)
Another soundtracker, once again based on sampled instruments, though more versatile than others we've seen. ☆☆☆☆

■ *ProTracker* - one of the best music trackers available for the Falcon on PD. It's damned good, and it's free.

HARD CHORD (31)
Iiiiiiit's another hard disk recorder, folks. No other facilities, though. ☆

BLOWUP (30)
A program for reconfiguring monitors to do all sorts of interesting things. Unless you're seriously techie you won't understand it all though, as the instructions seem reticent to explain even what it's for. ☆☆

PREMIUM MAH JONGG 2 (32)
It's *Mah Jongg*. When I got this job nobody ever said anything about having to play *Mah Jongg*. Nothing at all. I don't even think they've spelt it right. ☆

■ The excellent *Lasers and Men* - brainsquelching action, competently programmed, and incredibly good fun. Why isn't this guy working for Id?

TCB TRACKER (31)
A frankly unfathomable little package, with a colour scheme that could kill a man at 40 paces. ☆

TRON (32)
Probably the most impressive version of the old two-player classic yet. ☆☆☆☆☆

WINGLORD (32)
A very crap *Joust* clone. ☆

PASSION (33)
Quite a tacky and totally unimpressive little demo. Lie down and avoid. ☆

PENTAGONIA (33)
A demo that seems to be based entirely on messing about with the names of its authors (and getting the proportions of a thargoid utterly wrong). ☆☆☆

BUGABOO (34)
Its a complete 68000 assembler, though a bit of an unfriendly one at that. ☆☆

CURTAINS (34)
An anti-intruder alarm system to keep your screen from prying eyes. Utterly without use. ☆

FHTERMINAL (34)
A great comms package, with enough extra features to stand alone with a modem. ☆☆☆☆

FALCONSX (34)
A handy utility for setting up Falcon hardware automatically. ☆☆☆☆

GRABBER (34)
A program to grab certain amounts of memory and release it later, handy for running several programs and managing your own memory space. ☆☆☆

WINTOTOP (34)
A MultiTOS window manager utility. ☆☆

DCLOCK
A clock. ☆☆

XTASK (34)
A graphical front end for controlling running processes. ☆☆☆☆

VOXMESSAGE (34)
A wonderful little answerphone program, recording messages straight to hard disk and playing them back on request. ☆☆☆☆☆

ZOOM (34)
A reasonable icon editor. ☆☆☆

DIGITAL TRACKER DEMO (35)
A digital soundtracker that must be seen to be believed. ☆☆☆☆☆

SOUND EXCHANGE (35)
A sound sample format converter, of which there are few. ☆☆☆☆

PLAYMAN (35)
A player accessory for all of these sound formats we keep finding. ☆☆☆

HSN-KONVERT (36)
A sound format converter with a K instead of a C because it sounds more interesting, of course. ☆☆

MUSIC COMPILATION (37)
Sorry? Did someone say music? I can't quite hear due to this monotonous whining.

RAVE THE CHRISTMAS (38)
A slightly trippy version of *Rudolph The Red-Nosed Reindeer*. Not to be missed, in a pathetic sort of way. ☆☆

CONFLICT (39)
A strong graphical effect demo with few frills. ☆☆☆☆☆

TEKNO (40)
A hyperactive demo that didn't slow down once. Be prepared to collapse after 30 seconds. ☆☆☆

COOL (41)
A fairly dull demo with an outstanding soundtrack. ☆☆☆☆

EXTRO (41)
A one week, one coder demo. It shows. ☆☆

XMAS 94 (41)
A dull, samey demo with the worst soundtrack ever. Really.

Reviewer sighs and leans back, flatly refusing to sit and review several more disks'-worth of JPEG viewers and JPEG files. If you want to see them all, 16/32 would be quite happy to furnish you with them, but I'll be damned if I'm going through each one. So there.

CHRONOS
A 3D key frame animator, marred slightly by the fact it's damned difficult to use. ☆☆☆

And there we have it – all the PD you could possibly want for your machine, and some you wouldn't wish on your worst enemy. Any libraries boasting titles not featured here should send software marked "All Falcon PD" to the usual address and be fully prepared to be blown out of the water by a PD-weary writer. Anyone offering more picture file viewers will be shot, however.

Failing that, why not write some of your own? We've given you plenty of ideas to rip off, after all.

WHERE TO GO

If you want to get any of these titles for yourself, you can obtain them all by contacting 16/32 Systems at 173 High Street, Stroud, Kent, ME2 4TW or from any other good PD library (see our directory on page 57 for a full list). Please bear in mind that while PD software can be freely distributed, it cannot be altered – you cannot change the package, nor can you use sections of it in your own work. Also try to remember that libraries are supposed to be non-profit making organisations – treat them with the respect you owe someone doing you a favour.

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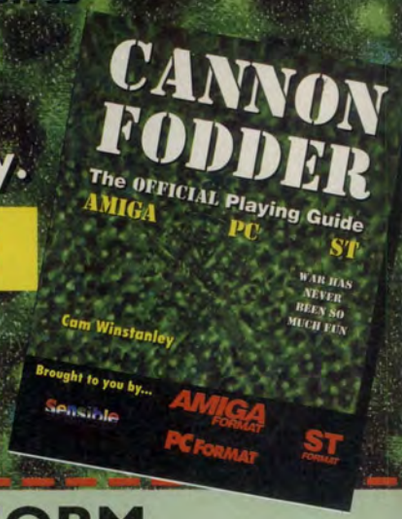

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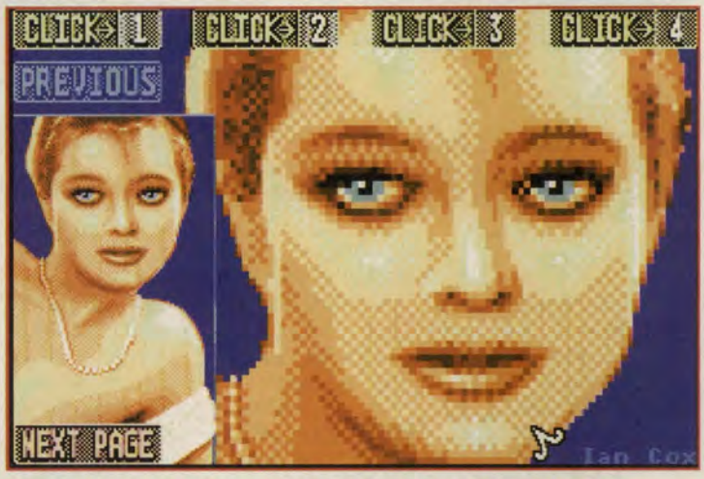
INDIES CORNER

From the ashes, a new army of programmers emerges, offering forth a new breed of software for the ST. The dark lord Forrester grinned evilly, and sat down to write the reviews...



This is Jenny. In her spare time she enjoys horse riding and hockey. Unfortunately, she's really damned ugly. Just look at those bloodshot eyes.

MASTER ART

You may remember that last month we looked at a graphic adventure called *Sword of Kings*. As well as being a reasonably good game it was also a demonstration of just what you can learn from *Master Art*, a drawing tutorial from the same author. The tutorial uses exactly the same system as the original game, running as a set of screens with text windows hidden under click buttons.

My art teacher called it "Stellar Sunset With Text Box." I hated school.

One of the main problems with art tutorials is that there's only a certain amount you can teach someone – if you're terminally bad at art then you just have to give up from the start. Which is why everybody hated art lessons at school – art teachers could never really grasp the concept that not everybody was as artistically brilliant as they were.

So those of you who don't know one end of a pencil from the other should give up right now. If you possess any creative skills, you'll be pleased to hear that this is a tutorial concentrating not only on the basics of drawing, but ideas and techniques that'll help you tidy up the pictures you're already drawing and keep everything in proportion.

If you're a fledgling artist in need of guidance your ST can come to the rescue yet again, but beware – this is not for beginners, and definitely not for the faint-hearted.

Master Art

£10 from Coxsoft
☎ 081 550 9241

Highs
- Excellently written.
- Easy to follow.
- Well drawn.

Lows
- Too many scantily clad women.
- A slightly unfriendly interface.

70%

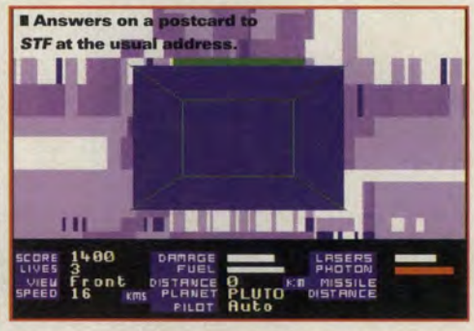
SOLAR WAR

If you've already read the 3D feature starting on page 28, you'll know all about the advanced techniques employed to draw and manipulate 3D images in a free environment. As a challenge to everything said in those pages, *Solar War 1* arrives, achieving a third dimension of sorts in a totally different way.

Your reasons for floating around in space, aimlessly killing, are twofold: it's damned good fun and there's a war on. In classic *Star Wars* style, an evil empire has sent fleets of fighters out to terrorize your solar system, and you're the only person who can stop them. The first leg of the laser-fest is based around Pluto, a blue planet spinning lazily as you float out of your space station (looking like a big purple Star Destroyer) and into a huge cloud of fighters.

The ship you're in is equipped with lasers and torpedoes, both of which destroy anything. Torpedoes seem to do more damage than lasers, but travel much slower toward their target.

Looking at the screenshots on this page, you'd probably think that this was a truly classy little game, featuring bitmapped and rotating objects in 3D space, but what you see is what you get – the ships are all 2D sprites floating a constant distance away from you. This is a slight problem, as it means the speed controls you're given deal only with moving towards or away from the ship, instead of letting you plough head first into a pack of alien scum with laser cannons blasting.



Answers on a postcard to *STF* at the usual address.

After mashing fighters for a while, a Deathstar-type-thing rolls on and starts hammering your space station, asking to be destroyed. A few hits with anything you can throw later, and you're ready to travel to your next planet. Hmm, deep.

That's it – shoot things around a planet and run like hell. Occasionally a different type of ship appears, but they all go down after a bit of laser, so nothing really poses a problem – the graphics just change.

For a game with virtually no depth whatsoever, *Solar War 1* is moderately good fun, but if you play for anything over ten minutes, there's something horribly wrong with you – this is just a shoot-'em-up pretending to be a space adventure but failing miserably. Docking with your space station simply refuels your ship, passing up a great opportunity for depth, a theme that's continued throughout the rest of the game, making *Solar War 1* fun for five minutes and repetitive from then on. The excellent soundtrack and sampled voices (bad spot effects, though) match the style of the game perfectly, totally upstaging the main event – there's nothing to *Solar War 1*.

This is the view of a war-cruiser it's best never to see.

Solar War 1

£4.99 from 999 Software, 1 Portland Avenue, Regents Park, Branston, Burton on Trent, Staffs, DE14 3GD

Highs
- Well it starts off okay.

Lows
- But things head downhill from then on.
- And they don't change direction.

20%

ISHAR 3

Grab your rags, pack Fleschripper (your sword), open your A-Z, and look up 'Black Dragon about to be possessed by evil Wizard'. *Ishar's* back

■ Jarvis and Kenny suddenly turned into stats boxes. Pete grinned evilly.

Simarils have had nothing but success with the *Ishar* series. RPGs aren't everybody's bag by a long way, but *Ishar* stormed the ST world leaving behind an instant wake of devotees. The company has a long(ish) history of games in the same vein, with exciting names like *Targhan* and *The Crystals of Arborea*, not to mention *Bunny Bricks* and *Mad Surfer Willy*.

Ishar 3 is 1994's contribution to the saga, subtitled *The Seven Gates Of Infinity*. Shandar, the evil wizard who got his head kicked in during *Ishar 2*, has returned, saved from his mystical knobbling by a protective amulet. Therefore *Ishar 3* chronicles the Good Blokes' efforts to stop Shandar returning in the form of Wohratax, the last survivor of the Black Dragon species, who were wiped out by the white knights. Chaos, the force that caused the bloodshed, gave the one remaining dragon immortality, and it's thus important that Shandar fails in his attempts to take on dragon form. Failing that, it would probably be a good idea to be a long way away when he succeeds.

Being the brave and righteous one, you've set out to form a band of merry warriors and kill Wohratax before the momentous planetary conjunction comes – everybody knows you can only inhabit other mystical forms when your planet and its moons are in line with the sun, you know. And... no, let's get it over with. Let's ruin the plot right here. To kill the dragon, you'll have to travel back in time. Which means we'd better forget the intricacies of the plot from here on – time travel can always be nit-picked.

That old line

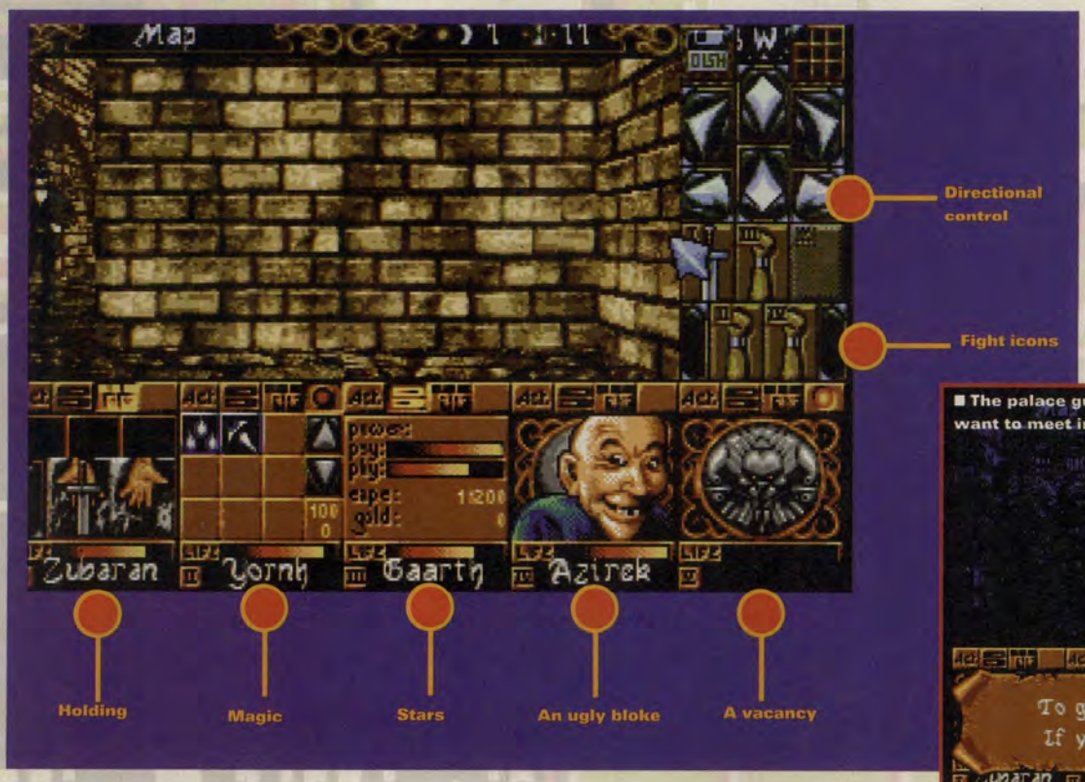
Fans of the genre will... *(That was the old line? – Ed)*. Yup – it's a graphic adventure game. Having said that, *Ishar 3* looks nothing like any graphic adventure you've ever seen before (except possibly *Ishar 2*). The game starts with your party (or, failing that, just you), standing on the outskirts of a huge medieval town, a city divided between the rich and the poor with an inner keep, guarded by fierce nutters. This sets the tone for the level (and the city is only one level), as you learn to judge everything by where in the city you're located.

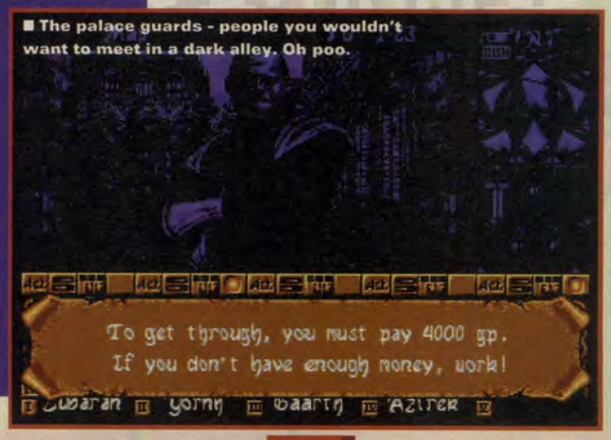
Ishar 3 is a game that many of you will love. It's deep, full of character, relaxed, and beautiful

Your party's movements are controlled by a set of directional icons to the right of the main image, each individual character's actions and stats being hidden under icons at the bottom of the screen. Movement is a matter of clicking the Forward, Backward, Sidestep and Rotate icons, while fighting is merely a matter of clicking on each character's weapon icon to make him attack.

And that's it. There are quite a few more stats screens you could wade through if you really wanted to take the classic RPG element further, but it isn't essential. Pages of figures and ability ratings may bore some (most?) people, but they're there if you want them. The rest of us can just take the psyche and physique ratings as gospel and wander around quite happily.

The way to survive in *Ishar 3* is to get a team together, the maximum number of people wandering around in a suspicious group being five. The benefit of a team is that you've got five people who can effectively move around as one, making good use of a wider range of skills. A wizard's always a good idea, because they have a whole wodge of handy spells for healing your own team and hurting others.





■ The palace guards - people you wouldn't want to meet in a dark alley. Oh poo.

This is the bloke with the trick of vanishing in a cloud of stars. Bet he can't play the spoons, though.

Other important team management abilities that really make the game are the options to have one team member assassinate another, others to kill the assassin through loyalty, and to have the entire band of merry warriors wipe itself out (or alternatively, you could play the game).

Back to town

As we've already learnt, the *Ishar 3* story begins with our characters standing in a town built entirely on the poverty gap. After wandering up to a few people and either being hit on, insulted or ignored, the aim of the first level remains totally unclear. A few people give you clues, one in particular starting with the words "I haven't got long" and finishing by vanishing in a cloud of glitter, which grabs your attention somewhat.

The rest of the first level is fairly straightforward, involving heavy drinking in taverns, listening in on conversations, and generally making a nuisance of yourself until the opportunity comes up to make money or explore somewhere new. Run-ins with the city guards or bandits (much the same thing, like in real life) are regular enough to get you used to fighting with the system, the entire first level working as a good introduction for both plot and game engine.

From this point onwards, things get more complex. And then some. Starting off in a city, you get used to different buildings, long walls, open courtyards and all manner of mappable objects. The automapping helps by plotting the location of every pub you pass. When you hit the forests, jungles, caverns and mountains, things get a little difficult. This is where the graphics become really important for working out where the hell you are – every location looks slightly different, not only because objects in the distance are still visible to a degree.

I once knew a girl who dressed like that. My mother beat me soundly. Wonder why?

Ishar's beautifully presented, but then so were its two predecessors. A walk in the woods means not only trees, fallen logs, clearings, swamps and hills, but cuckoos going off every few seconds. The jungles come complete with insects, the mountains with breeze – in fact no corner's been cut to make you feel not at home. You won't come across many other games that use most of their sound effects purely to create atmosphere.

This attention to detail can be found on all levels – with a game like *Ishar*, you really do worry about treading off the beaten path. Other adventure games will keep you travelling in the right direction with a design point equivalent to the programmer's face popping up in a window and telling you to turn back. This time, the maps, plots and tasks are all fairly simple in that you never really have to work out what you're supposed to be doing: delivering a package involves following directions while simply jumping through a weird portal fing involves, erm, finding a weird portal fing. *Ishar 3* doesn't rely on getting you lost, killed, robbed, bored or just plain angry to provide a challenge. Instead, the challenge comes from the exploration, courage, cunning and skill required to progress through the game, at no point telling you which way to go or stopping you wasting time.

That's *Ishar* all over – if you eavesdrop on a conversation in a pub, you'll not only hear about events relevant to your quest but about thieves in the north of the city, someone wanting to go to the theatre, and the fuss they made about the ferret. Whether it's important or not, *Ishar's* designers realise that these touches make *Ishar* what it is.

This detail is also betrayed by the game's size. Coming on five disks, *Ishar 3* will definitely keep you occupied – if you get as far as disk D you know you're getting in quite deep, because A, B and C are taken up purely with the opening sequence and the first few levels. Initially, the gameplay may seem repetitive, but the huge variety of people, places, tasks and twists turns what could have been a repetitive game style into a comfortable interface with which you explore the world of *Ishar 3*. The point is that although the game may go from tropical jungles to quantum time threads, you never have to face any new playing styles.

Sounds good, doesn't it? Every game has a flaw though, and *Ishar 3* can't escape the fundamental rules of life. Not everyone you meet will be talkative, and there's no provision for starting conversations in the street. But these people have laid down their tongues for the sake of others who get huge animated conversation sequences all to themselves. In fact, *Ishar 3* seems to suffer a lack of space all the way through – the only time you're disappointed with the game is when the huge amounts of detail and data suddenly stop. This is necessary, but comes as rather a shock when it happens.

Ishar 3 is a game that many of you will love. It's deep (without being confusing or too difficult), full of character (without being overpowering), relaxed (but not boring), and beautiful (remember kids – sentence structure can kill). This is not a game for the lighthearted though, being based largely on exploration and discovery, and you don't have a gun (only the occasional spell and a bloody great axe). Sword and sorcery fans should rush out and buy *Ishar 3* immediately, purely for its atmosphere, but the rest of us should give it a little more consideration before parting with our wads.

SIMON FORRESTER

Slowly, he looked around, with a look that could... No, sorry, it's gone.

LIFE'S CRUEL

The first problem you face when playing *Ishar 3* is poverty. You can make a bit of moolah from the fast profit system of recruiting people, 'redistributing' their wealth to one man (who stands at the back with armour), then getting another team member to assassinate the now-poor straggler, leaving space for another new guy with a fat wallet.

The only major problem with this technique is that, though you can be the richest person in the city, this is usually due to the fact that everyone else is dead. At least they died poor, eh?

Ishar 3

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Highs
- Huuuuuuuuuuuge
- Detailed
- Beautifully presented

Lows
- There's only so much you can fit on to five disks

84%

RORKE'S DRIFT

Blood, guts and violence, that's what we all like in a game. So *Rorke's Drift* has all makings of a classic, right? Wrong

Set way back in the 1800s, *Rorke's Drift* recreates the British army's Oscar-nominated ruck with the Zulu empire. The location: a small farmstead called Rorke's Drift. Your character: a British officer faced with the arduous task of marshalling 137 redcoats (36 of whom are badly injured) to face 4,000 Zulu warriors. Your objective: to survive and, of course, to supply enough heroic ammunition to justify a Hollywood epic some 100 years later.

Now the astute among you may already have sussed that this is a war game, which – for those less informed – means it is like chess with guns. You have to develop an educated (watch *Zulu* and *Zulu Dawn* for a few clues) strategy, taking into account all the factors that might affect your soldiers' performance in the battle against the blood-thirsty Zulus.

Now look, at this point I ought to come clean. You should only read on if you are seriously into war games, because *Rorke's Drift* has few redeeming features. The music is incredibly twee, and sounds completely out of place in what is, after all, an African war sim. Where are the haunting drums, the Zulu chants, the electric guitars? Then there's the battle mode (as opposed to the strategy mode), which is so ineffectively programmed that even when you have your weapon pixel pointed directly at the centre of your enemy's forehead there's still a good chance of you missing.

Sluggish

But *Rorke's Drift's* biggest sin, for a map-based war game, is that its controls are so sluggish. In a game that involves dealing with huge logistical challenges, and making decisions upon which lives depend, you need to be able to hop around the map quickly, giving and checking orders. Yet in the battle mode – in which both teams battle away – the mouse cursor actually slows down whenever you try to scroll to another section. This makes it impossible for you to work out what's going on, so you tend to end up choosing to stay exactly where you are, and stuff the consequences (and the rest of your troops, in fact). This never happened to Bonaparte, surely?

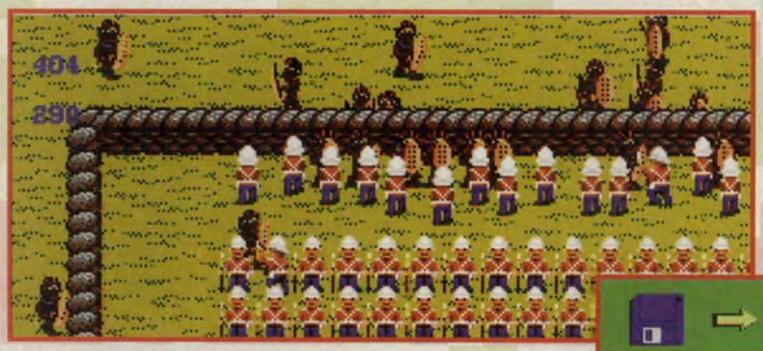
But this control quibble only goes to emphasise *Rorke's Drift's* main failing: it's prolonged to incredibly tedious lengths. The "quick" version probably breaches a number of trading standards conventions. On my first attempt to reach strategic excellence, playing on the "quick" setting, I blasted away for three hours until apathy set in and, with a point and a click, I condemned my men to an agonising death under a raging African sun (or something like that), and went to the pub to slaughter a few pints instead.

Rorke's Drift is a game of sheer frustration. There are some good elements within the game, some elegant tactical devices that computer generals could enjoy playing with, some historical theories that it would be nice to be test, but the game interface seems loathe to let you at them. To be successful a war game should enable you to delve as deep as you want into the event. Beginners should be able to scratch the surface, while experienced warheads can get right down among the muck and bullets. *Rorke's Drift* just doesn't appear to have a superficial level. It offers the necessary depth, but the mechanically repetitive nature of its gameplay soon proves an almost insurmountable barrier to actually playing the game. Which is shame, because the scenario is intriguing and the graphics go a fair way towards dispelling the traditional curse of war gaming, which is that they tend to resemble spreadsheets.

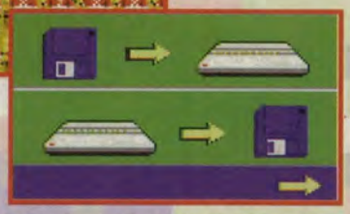
If you're a student of imperial history or an absolutely avid war games fan then *Rorke's Drift* is worth the effort. For the casual campaigner or wanna-be warrior however it's too tedious to try.

ANDREW LUCAS

Hooray! The map is always a vital part of a war game like *Rorke's Drift*. Here it's actually useful – you can pan into any area of the battleground.



Develop your own strategy. Mine is to bung a load of men up the top and barricade it. Cowardly, me?



Thank you Tactix! A Save function is crucial in a game like this, but even the Save doesn't 'save' *Rorke's Drift* from falling into the hole it's already dug itself into. (Sorry, that really was a terrible gag.)

Art imitates life part 1

While *Rorke's Drift* tells the tale of the Zulu wars without the aid of a Hollywood film script, it's hard to play the game without comparing it to that Boxing Day classic, *Zulu*. This film, apart from being silly and more than a little politically dodgy, does exhibit some odd claims to fame – it's famous for one line, where Michael Caine says, "Stop chucking those bloody spears at me." At least that's what he *should* have said. Shame.

Art imitates life part 2

Another little known fact is that, like respected politicians Ed Koch, Trotsky and Tip O'Neill, one of South Africa's leaders appeared in *Zulu*. Playing the Zulu King Cetewayo was none other than the Chief Buthelezi, head of the Inkatha Freedom Party and real life Zulu King. His performance failed to win him either an Oscar or an election – more a case of "Stop chucking those bloody votes at me" perchance?

Rorke's Drift

£7.99 Tactix
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Highs
- A complex and flexible war game engine

Lows
- Heavy going – even the quick version's slow
- Only for real war game fans and imperial history students

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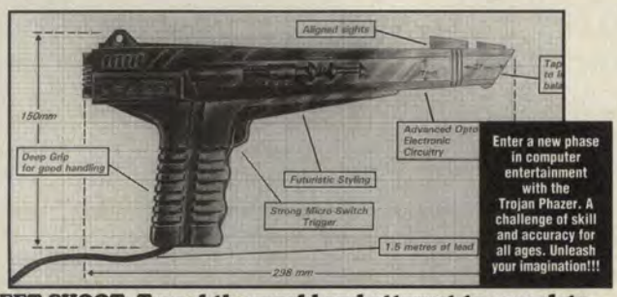

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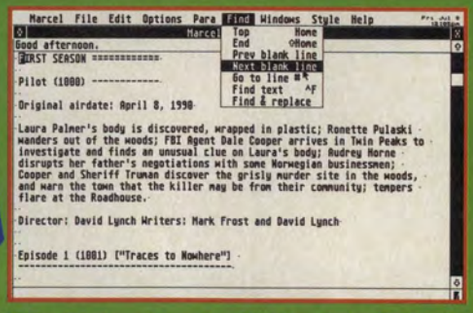

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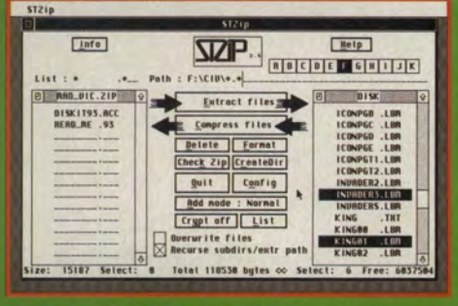

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ST ANSWERS

There comes a time in a man's life when he has to look the potato of injustice squarely in the eye. Now is that time, Clive Parker is that man

Getting upgraded

FALCON

I've been trying to get my TOS 4.01 ROM in my Falcon upgraded for several months, Atari don't seem able to help me. Do you have any idea where I can get TOS 4.04 from?
Edgar Wallace, London

A *There are a couple of options open to you, depending on the type of TOS ROM in your Falcon. If your ROM is an EPROM (Erasable Programmable Read Only Memory) then you can get the latest version of TOS 4.04 by sending the chip to Compo Software (☎ 0487 3582) – they can copy the new TOS on to your old EPROM. You can tell if you have an EPROM by peeling back the label on the chip, if there is a small window in the chip it is an EPROM, if there isn't a window then it's an ordinary ROM chip and can't be erased. Call Compo for their current upgrade prices.*

If you have a ROM version of TOS 4 then you're going to need a replacement chip. Contact A F Weaver Engineering (☎ 071 267 3308), who can get supplies of TOS 4.04 chips – although you may well have to wait a few weeks for them to come into stock. Give them a call and ask them nicely for prices and details.

Going to 4MBytes

HARDWARE

I have been told by an Atari dealer in Rome that it's not convenient to fit my old STF with a 4MByte upgrade because it causes problems. He has informed me that STFs don't work very well after being upgraded in this way. Is the upgrade possible and what kit should I use?
Angelo Gravela, Italy

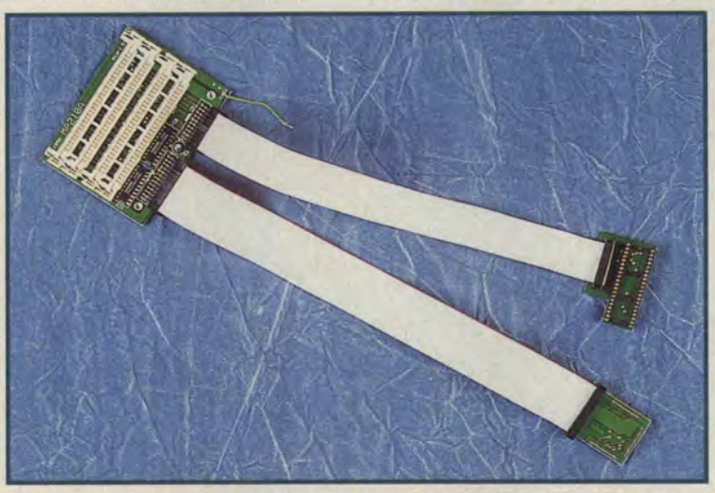
A *We contacted Marpet Developments to check if your STF is upgradeable and they informed us that it's no more difficult to perform than the STFM upgrade – in fact it's exactly the same. You can use the Marpet XtraRAM Deluxe kit to upgrade your STF using standard 30-pin SIMMs. Give Marpet a call on ☎ (+44) 423 712600 and they'll tell you how much the board will cost you, including shipping to Italy.*

Lost books

SOFTWARE

Has the Abacus range of Atari ST books gone out of print? I want to improve my knowledge of ST machine code and I desperately want to get hold of *Atari ST Internals, Machine Language, the GEM Programmers Reference* and *3D Graphics* – all by Abacus. Can I still get hold of them?
Paul Verity, Essex

A *The Abacus range of ST books has – as you guessed – gone out of print. You may be able to get hold of second-hand copies by placing a free classified advert in Micro Mart – a weekly magazine. Or if any ST FORMAT readers have copies of the books that they no longer want then let us know, we'll pass on the info to Paul.*



It's as easy to fit the XtraRAM Deluxe in an STF as it is to fit it in the STFM. And how easy is that? Dead easy, that's how.

Railroad Tycoon

SOFTWARE

I am having a problem with *Railroad Tycoon* on my STFM, which is upgraded to 4MBytes using the XtraRAM Deluxe board. The problem is that the game crashes every time I run it, yet everything else works okay and a memory checking program reports that I have 4MBytes. What's going on here?
John Dixon, Herts

A *Railroad Tycoon has trouble running on any ST with more than 1MByte of memory – but don't worry. We have included a small program on this month's Cover Disk called MAKE_1MB.TOS, so all you need to do is run this program and reset your ST. When your ST boots up it thinks that there's only 1MByte of RAM installed and the game now runs okay.*

More drives required

HARDWARE

I have a 1040STE with a second floppy drive. Is there any way I can add any more floppy drives to my setup?
R Layfield, Northallerton

A *No, you can't add any more floppy drives to your system because of the hardware limitations*

Zip-ah-de-do-dah

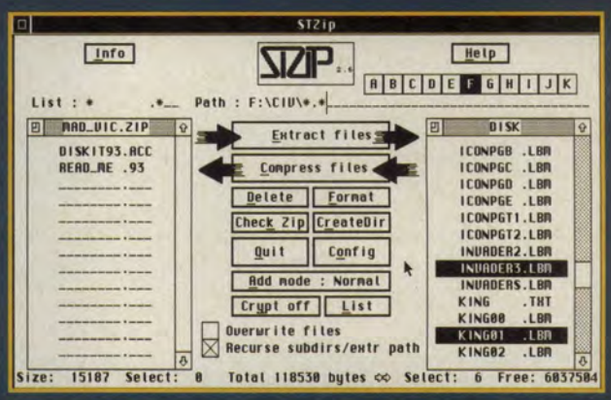
DISKS

I'd just like to add a little to your feature on extracting ZIP files on single floppy drive systems in *ST FORMAT* 60 (turn to page 90 to order a copy if you missed it). If you have 1MByte of RAM in your system there is a much faster way of extracting ZIP files. You need a RAMdisk program like *M-Disk* from *ST FORMAT* Cover Disk 44. Boot up with *M-Disk* and set the RAMdisk program to 500K in size, which should be big enough to cope with most compressed files.

Run *STZIP* from floppy disk, and select drive A as the source for your ZIP file, and your RAMdisk as the destination, then unzip the file in the usual way using *STZIP*. When you have finished, exit *STZIP* and copy the extracted files to a blank disk. If there is enough room you can copy the ZIP file to the RAMdisk and extract it on to the RAMdisk – this operation is lightning fast compared to working from floppies.

Using a RAMdisk is also a quick, easy way to unpack the self-extracting files found on the *ST FORMAT* Cover Disks. You can set your RAMdisk to around 700K, which gives you enough room to unpack almost any file, but it's a good idea to check the uncompressed size of the archive in the Cover Disk pages.
Ben Stevenson, Nottingham

stf: *Thanks for those tips Ben. We didn't mention RAMdisks in the original ZIP feature because of limited space. We were going to talk about it in this issue but you've beaten us to it – so we'll have to think of something else to talk about now.*



***STZIP 2.6*, top archiver, excellent program and all-round good guy. If you're an *ST FORMAT* subscriber you can find *STZIP 2.6* - the latest version of course - on this month's free Wonderdisk.**

GFA WORKSHOP

Mac Marsden comes out of his shell to give you the low-down on using GEM in your GFA programs

Shell conversion

I have just acquired GShell to complement GFA Basic. My question is once I have finished my program how do I use GShell to transform my GFA so that I can run it on the GEM Desktop?
Dahel Shields, Tyne and Wear

stf: *Once your program is finished and error free you need to compile and link it to enable GShell to convert it to an executable PRG, ACC, TTP or TOS program. You can do this by going to the GShell main menu screen (see Main GShell Menu) and clicking on None next to the Source file – None option. This gives you access to a file selector from which you can select your file with the GFA extension you wish to convert.*

You must make sure that GShell knows where the compiler and linker are situated. You can do this by selecting the Settings option at the bottom-left which places you in the Settings menu. Now select Edit GShell Settings and select GFA_BCOM.PRG, and a file selector box appears enabling you to find and select GFA_BCOM.PRG. Now select the OK button and repeat the process for the linker (GL.PRG).

Now you need to tell GShell the pathways to your source code, object code, library and where you want your finished program to be placed. And to do all this, just use the same method as you used to set GFA_BCOM.PRG and GL.PRG.

Using the GShell Settings menu you'll soon have GShell set up to suit your style of programming.

Source: Where your source .GFA may be found.
Object: Disk space required by the compiler/linker.
Library: File to be used by the linker.
Program: Where to write your finished program.

When you have set the above, select the OK button. Now save these settings so that you don't have to enter this data every time you use GFA Basic. Now click on the Save option, select DEFAULT.GSH and then select OK. You now return to GShell Main Menu.

Now you can get GShell to do the compiling and linking. There's no need to do this separately (by selecting Compile then Link). All you have to do instead is select the Make option, and if you have all of the settings correct it should give you a finished program that can be run from the GEM Desktop. Don't worry if your GShell Main Menu doesn't look exactly the same as ours – with a bit more experience you'll configure it to suit your own style of programming.

This is the main GShell menu, where you can configure all those lovely GEM objects.

Five top tips for using GShell

1. Tell GShell exactly where all of your required programs can be located.
2. Set Delete object to Yes, to save wasting disk space on old O files.
3. Remember to set Result to the extension you require before you compile and link your code.
4. If you are not using full 32-bit mathematics in your program then set the following to 16-bit operation (this gives you a smaller, faster final program): SELECT parameters, Integer multiply and RC_INTERSECT parms.
5. And don't forget that you can access help on syntax by using the INFO option from the GShell main menu.

Round up

Is there any way I can do either of the following things using GFA Basic? Can I convert a decimal number into a whole number and perform a mathematical function on a decimal number? Then can I have the result rounded up to a specified number of decimal places?
Barry Barnes, West Lothian

stf: *You can do both using a variation of the same command* `(ROUND(x[,n])`. *To convert a decimal number to an integer you use*

```
y=ROUND(1.2)
```

where y holds the nearest whole number, which is 1 in our example.

*If you were to perform PI*100, and you wished to have it to five decimal places you use*

```
y=ROUND(PI*100,i%)
```

where I%=5 and y has the value 314.15927. If I% had a negative value, say -2, the rounding would be done to the left of the decimal place and the result would then be 300, rounding up the two numbers left of the decimal place to the nearest whole number.

Protected programs

Am I able to save a .GFA program on disk which cannot be listed when reloaded and run?
James Spalding, Halifax

stf: *The command you are looking for is* `PSAVE` *(protected save) using the command*

```
PSAVE "A:\TEST.GFA"
```

where TEST.GFA would be saved to your disk in drive A. When reloaded into the GFA interpreter it would be run automatically with no listing available even if the program operation is halted.

STF WARNING: Once you have protected a program in this way there is NO way in which you can change it back to normal GFA Basic listable code, so make sure you keep a backup of every program you protect.

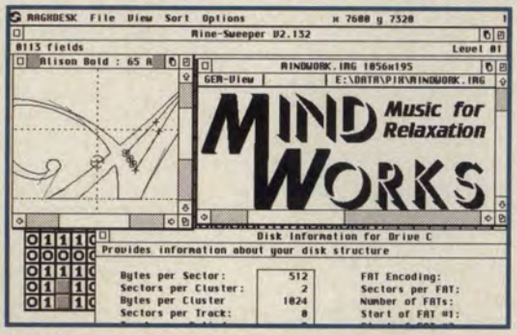
of the ST. If you want to add more storage space you should really add a hard drive to your system – another floppy wouldn't make any appreciable difference to your system even if you could add it. You can get a 127MByte hard drive from Gasteiner for £269, or if you want a smaller capacity hard drive call them on (☎ 081 345 6000) for current prices.

Oh, ho ho it's Mag!x

SOFTWARE

I have an STE with TOS 1.62 and 4MBytes of RAM. Is the Mag!x system an alternative to TOS 2.06? I understand that the original TOS is overwritten by Mag!x. Would I be wiser to upgrade to this instead of TOS 2.06? They are both about the same price and Mag!x seems to be easier to install than a TOS Switcher board.
Jamie Simmons, Kent

A *Mag!x (now renamed MagiC) and TOS 2.06 perform two completely different functions. TOS 2.06 gives you an enhanced version of the standard ST operating system, while MagiC gives you a completely new, multitasking operating system that replaces the built-in operating system. It doesn't overwrite the TOS operating system, it runs instead of it. So the choice is up to you: if you want to multitask on your system then go for MagiC; if you want all the advantages of TOS 2.06's enhanced OS then get a TOS Switcher. To find out more about TOS 2 take a look at the TOS 2.06 feature on page 80 and in last month's ST FORMAT (turn to page 90 for back issues).*



Mag!x is the fastest and most reliable multitasking operating system available – and it works on any ST.

TOS 2? We think it's luurvly. In fact, we like it so much we bought the company. A closer shave or your money back. *(Yyyeessss - Ed)*

Very basic indeed

SOFTWARE

How can I make a 1st Basic program runnable from the Desktop? I have tried using PRG and TOS extensions but I just get a TOS error whenever I try to run them.
Martin Lovick, Bishops Stortford

A *You can't run any 1st Basic program listing from the Desktop just by renaming it with a program file extender. Instead you have to convert it to a machine code program using a compiler. Your best bet is to get a more up to date version of BASIC. Try HiSoft Basic 2.10 from HiSoft AVR – it's similar to 1st Basic and has everything you need to create stand-alone programs. HiSoft Basic 2.10 costs £99.95 and is the best version you can get. Give HiSoft a call on ☎ 0525 718181 for more info.*

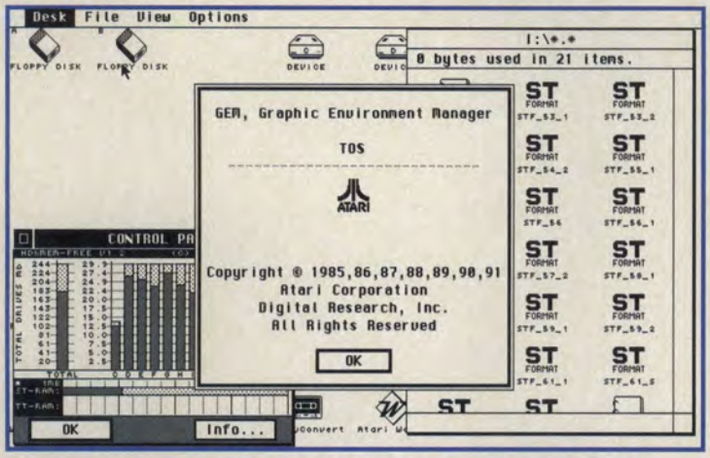
Is it DOS?

SOFTWARE

Is TOS an operating system like DOS or is it built into GEM?

Simon Phoenix, Los Angeles

Er, TOS is an operating system but it's nothing like DOS at all. DOS is an old disk based command line operating system based on computing principles developed in the '60s for CP/M. TOS is stored in hardware rather than software and has GEM built into it rather than the other way around. TOS uses GEM as a tool to communicate with the outside world, using windows, icons, menus and the mouse pointer to initiate actions on screen.



No no no no no no no! TOS is nothing like DOS. Okay, some of the basic underlying IO commands might be closely related to their DOS originals, but TOS is totally different. It's got its own, unique, special character.

Michtron manual

COMMS

I have recently got into comms using my ST and I want to use the Michtron BBS software, which you gave away with your *Knife ST* Cover Disk on *ST FORMAT* 42. Where can I get the manual from?

Mr Holme, East Sussex

All Michtron software, including the Michtron BBS, was originally distributed in the UK by Microdeal. All Microdeal software is now distributed by HiSoft AVR and they have a few Michtron BBS manuals left. Try negotiating with HiSoft on ☎ 0525 71818.

Simply the best

GRAPHICS

Inspired by your DTP feature in *ST FORMAT* 59, I've decided to buy a colour inkjet printer and upgrade to 4MBytes of memory. I'm also getting some peripherals such as an external floppy drive. I'm thinking of getting the HP DeskJet 310 – is it the best colour printer in this price range? And which are the best picture convertors and programs for colour output?

James Cribb, London

We're glad you liked the DTP feature enough for it to inspire you James. However, we should point out that DTP programs and colour picture files take up lots of disk space, and you'll be hard pressed to get much serious work done just

STOS CORNER

PROGRAMMING

Frank Charlton continues to STOS about in the pages of ST Answers

Fish'n'Chipmusic

I am a STOS owner and I've registered the Shareware *Missing Link* Extension which was given away on *ST FORMAT* Cover Disk 51. My query is about the MUSAUTO command which accepts chipmusic from Mad Max, Synthdream and so on. How do I create music in these formats to play with MUSAUTO in my own STOS programs?

Andrew Nelms, Matlock

stf: *Bad news, Andrew – you can't. The chipmusic formats you mention are commonly used in demos, and the programmers and musicians who created these music formats have never released editing software to create your own tunes. Some demo writers recycle the same music from one demo to the next, and you'll often hear the same tunes used repeatedly. Disks full of Mad Max and other music types are available from most PD libraries, so check with your favourite PD source (there's a list of libraries on page 57). Alternatively, you could use a ripper program to extract the music from a demo so you can use it. There are lots of these programs in the PD, and they all handle Mad Max format and often quite a few others, too.*

Palette problems

I am busy writing a game in STOS, but whenever I place a sprite on the background screen it changes colour, because my background screen and sprite bank were created with two different colour palettes. Can I set up two separate palettes for sprites and screen, or do I have to go back and redo some of them?

Jake Shepherd, Bootle

stf: *Unfortunately, you'll have to re-do some of your hard work. The basic 16-colour limitation of the ST means you're restricted to one colour palette per screen without using special palette switching techniques. The Missing Link extension from ST FORMAT Cover Disk 51 (turn to page 90 if you missed it) provides commands for changing palettes in mid-screen, giving the illusion of more than 16 colours, but this technique is usually used to provide a separate set of colours for a score panel at the bottom of the screen. You can't actually use sprites designed with their own unique 16 colour palette on top of a background screen using a different palette.*

Rave on!

I'm getting fed up with the limitations of STOS. I'd really like to use samples in my games because I can't take the gritty little chip effects any longer. The sample playback routine I have from *StereoMaster* only enables me to use small samples, and the playback quality is pathetic as well. How can I use huge stereo STE samples, so I could shake the walls with a few booming rave soundtracks?

Philip Palmer, Peterhead

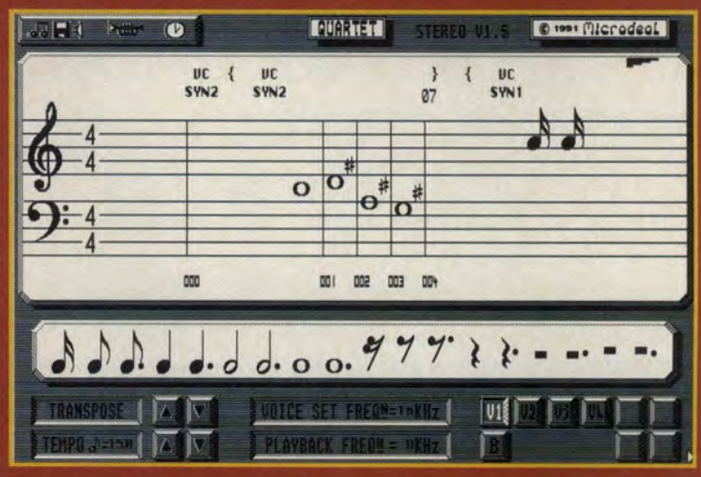
stf: *Check out the special STE Extension we gave you way back on Cover Disk 32 – it enables you to play samples back using the STE's enhanced DMA output at 6, 12.6 and 25 KHz in mono or glorious stereo, and you can adjust the bass and treble too. If you want your games to be compatible with the older STFM machines you won't be able to use DMA sound, so check out the Missing Link extension for the best sample playback on standard STs. Remember both extensions are Shareware, so you'll need to register them if you continue to use them. Have fun shaking your walls!*

Sequence dancing

Is there a STOS Extension that enables me to use or view the SEQ animation format used by *CyberPaint?*

Michelle Hubbuck, Chester

stf: *Nope, sorry. We've been asked this question a lot over the years, and the answer is still a negative one. There's not much info on the SEQ file format so no-one has bothered to write a STOS extension or routine to display CyberPaint animations. If you've written a routine to use SEQ animations within STOS, write to us and let us know!*



You've asked often enough in the past, and now the answer is yes - you can use your *Quartet* tunes in STOS!

Quartet at last?

I know you've been asked before, but surely someone must have done it by now – can I use *Quartet* music from within STOS?

John Spartan, Keighley

stf: *Yes! The program you want is called STOSPLAY, and Floppyshop PD (☎ 0224 586208) can supply it. Give them a ring for ordering details – the disk you're after is catalogued as MUS 3687. It's not perfect, because you can't access the disk while music is playing, but it works well and plays in stereo on an STE.*

Back up your disks!

Finally this month, a word to those of you who have included disks with your letters requesting copies of everything from PD Extensions to replacement copies of your corrupted STOS disks – we can't do it! We spend so much time producing the magazine that we don't have time to copy disks, and we certainly can't provide new copies of STOS if you've managed to delete your originals.

Never work with an original STOS disk; always use a back-up copy to avoid unpleasant accidents. There's a wealth of extensions and bits of STOS code, all available from almost any PD library.

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Unpopulated Marpet board £24.00
See SIMM prices below.

STE Packs

1Mb RAM STE	£199.99
2Mb RAM STE	£254.99
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Courier Pickup	£11.00
Courier return	£7.00

Phone for price and availability of ST spares.

Monitors/TV's

Dataview Hi Res Monitor £109.99
High quality 14" SVGA Monitor with ST adaptor (includes sound). Fully compatible with all ST Hi-Res Programmes with tilt/swivel.

Samsung C13351X 14" £169.99
Fully remote control 14" TV with Scart input for near monitor quality display.

Colour SVGA Monitor £239.99
High quality colour SVGA Monitor, .28 dot pitch includes Falcon adaptor.

Microvitec 1438 MultiSync £289.99
The Microvitec Multi-Sync displays ST Low, Medium, High resolutions using ST switch box, compatible with FALCON & FALCON screen blaster using FALCON VGA adaptor.

ST Multisync switchbox	£19.99
Falcon VGA Adaptor	£9.99
Falcon ST monitor Adptr	£9.99
Philips SCART to ST/STE	£9.99
8833 MKII to ST/STE	£9.99

using floppy drives. You need a hard drive as part of your setup. The basic setup described is just that – basic.

The HP DeskJet 310 is certainly an excellent buy – you can pick it up from We Serve (☎ 0705 647000) for under £250 including a three year guarantee. There are two programs we can recommend for picture conversion: GEM-View 3 from Floppyshop is Shareware and is great for converting pictures from other computer platforms, while Imagecopy Colour 3 (reviewed on page 40) from the FaST Club is the best at outputting colour images to printer. Another point worth mentioning: when you choose your DTP program, ensure that it has printer drivers to support the printer you buy.

He shoots, he scores! Arguably the best picture conversion program ever for the ST and Falcon, *GEM-View 3* is updated on a regular basis - seemingly once a month. We're certainly impressed.

Oh yes. *Imagecopy Colour 3* rises once more in a new and improved form. It now carries out even more conversions and prints to loads of different printers. Turn to page 40 for our scintillating yet down-to-earth review.

Video out

HARDWARE

I want to record the output of my STE directly on to videotape using the SCART connection of my VCR. Can I connect the monitor port output of my STE to the SCART socket, and if so, where can I get the lead?
J Cain, London

A *You can connect your ST to a VCR using a composite video SCART lead. Call Meedmore on ☎ 051 521 2202 with full details of your VCR's make and model number, and if they don't have a ready-made lead they can make one up for around £15.*

VideoMaster problem

GRAPHICS

I have a 2MByte STE and I am very impressed with the *VideoMaster* software on the Cover Disk of *ST FORMAT* 59. My problem is that I don't have a video recorder or a camcorder, so is there any way I could get images

MUSIC AND MIDI

Andy Curtis tackles the good, the bad and the ridiculous in this month's thrilling MIDI based music column

Score printout

I use a 2MByte STE and *Steinberg Pro 24 version 3* for MIDI sequencing. I also use a Citizen 9-pin printer which I was informed worked well with the Atari and I have had no problems with printing from word processing packages. However, when I come to print out from *Pro 24*, bits of the stave are missed out and the whole page looks a complete mess. The printout is of virtually no use as a musical score. Please help!
G Henwood, Hants

stf: *It seems like the problem here is with the actual printer driver you are using. Make sure that your printer is set up to obey Epson FX commands and use the supplied Epson FX printer driver from Pro 24. If you are still experiencing problems it is worthwhile to check the setup of the printer again. Word processing programs sometimes access the built-in fonts of the printer and never require it to use graphics mode printing, and if you have difficulty printing pictures then this could be the problem. It is important that graphics printing is enabled on your printer.*

Sequencing and samples

I currently run a Roland R8 drum machine using *Pro 24 version 3* and a 1040STE. However, I am interested in playing samples at the same time. Is there a different program that will enable me to play samples at the same time as being a sequencer for my drum machine?
Sandy Smaple, Wimbledon

stf: *If you need 16-bit sample quality then there is only one choice at the moment. Breakthru 2 and Replay 16. Breakthru 2 is a well specified sequencer package that also replays 16-bit samples through the Replay 16 hardware, which plugs into the cartridge port on your ST. The samples can be sequenced along with your drum patterns and any other MIDI gear you might wish to address.*

Sampling through Replay 16 is extremely easy using the supplied software. Breakthru 2 and Replay 16 can be bought as a package from Software Technology. Call ☎ 061 2362515 for more details.

MIDI is MIDI!

Can I connect two 5-pin DIN plugs to the MIDI ports on the left-hand side of my STE? Each 5-pin DIN plug has two other leads coming from the other end which are marked "Audio In" and "Audio Out". Bear in mind that I would have to plug one of the 5-pin DIN plugs in the MIDI "In" port, with the Audio "In" connected to a hi-fi system, and with the information that's going out of the computer connected in the same way. Could you also tell me what software to use, preferably costing no more than £70.
Chris Barton, Sevenoaks

stf: *We included your letter, Steven, to highlight how seriously it is possible to misunderstand what MIDI is. The core of your problem is that you haven't grasped that MIDI is MIDI (Musical Instrument Digital Interface) and not audio. MIDI is a stream of serial data which can be used to control synthesizers that support the MIDI standard. If you connect a MIDI output to an amplifier you will hear little or nothing, we really don't advise it. Use the left and right phono outputs instead to feed sound from your STE into your hi-fi setup.*

Mini-Disc mayhem

I have an Atari STF 1040 and a Sony Mini-Disc recorder. Is there any way in which I can merge my Mini-Disc recordings into the ST as samples?
Mike Berry, Plymouth

stf: *There is no way to directly patch Mini-Disc data on to your ST at the moment. The best way to transfer data is by using Replay 16 hardware and software to sample from the Mini-Disc and then replay the sounds using your computer.*

Replay 16 is available from Hi Soft/AVR, give them a call on ☎ 0525 718181.

Memory expansion

I need more memory to run *Cubase v3* satisfactorily on my STE. I am considering buying myself a hard drive – is this the most cost effective way of increasing the RAM in my ST.
Derek Gordon, London

stf: *There seems to be a major misunderstanding here. It is important not to confuse hard drive storage space with RAM (Random Access Memory). Hard drive storage space is the amount of MBytes you have available for data storage – think of a hard drive as a very large floppy disk drive with masses of space.*

RAM is the memory in your ST into which programs can be loaded. The maximum amount of RAM on an ST is generally 4MBytes, but the amount of hard drive storage is only limited by the size of the hard drive you purchase. From this you can see that there is no alternative to upgrading the RAM on your ST to 2MBytes or 4MBytes.

A hard drive is a wonderful luxury but it doesn't expand your RAM, make nice hot cups of tea or do the washing up. Shame.

ASSEMBLY POINTERS

Explore the esoteric mysteries of finding fascinating file information in assembly language with Tony Wagstaff.

File Info

Could you explain how to find information on a file, such as its date and time, whether it's read only, and whether or not it exists.
Martin Bowen, Devon

stf: *Discovering whether a file exists is simply a question of opening it, using* `Fopen`*, and checking the return value contained in* `d0`

```
 move.w #0,-(sp)
 pea myfile
 move.w #$3D,-(sp)
 trap #1
 addq.l #8,sp

 data
myfile dc.b 'A:\TEST.S',0
```

If `d0` *contains a negative number, then an error occurs. If the error number is -33, this indicates the GEMDOS error "File not found", and you can assume your file does not exist. A positive number in* `d0` *indicates a successful opening, and the number can be used as the handle of the file. Don't forget to close your file using* `Fclose` *once you've finished with it.*

```
 move.w handle,-(sp)
 move.w #$3e,-(sp)
 trap #1
 addq.l #4,sp
```

The date and time can be found using another GEMDOS call, `Fdatime`

```
 move.w flag,-(sp)
 move.w handle,-(sp)
 pea timeptr
 move.w #$57,-(sp)
 trap #1
 lea 10(sp),sp
 bss
timeptr ds.w 2
```

After calling `Fdatime`*, with flag set to 0,* `timeptr` *contains the time stamp of the file. This is stored in the following format*

Of the first word, bits 0-4 contain the day, 5-8 the month, 9-15 the year minus 1980. In the second word, bits 0-4 contain the seconds divided by two, 5-10 the minutes, 11-15 the hour. In fact, if we swap the two words of `timeptr` *we get the same value as that returned by the* `XBios Gettime` *call. So, once we have swapped the two words around*

```
 move.l timeptr,d0
 swap d
```

we can use the routine given in ST FORMAT issue 55 – turn to page 90 if you missed it.

Finally the various file attributes can be obtained using `Fattrib`

```
 move.w attr,-(sp)
 move.w flag,-(sp)
 pea myfile
 move.w #$43,-(sp)
 trap #1
 lea 10(sp),sp
 data
myfile dc.b 'A:\TEST.S',0
```

`Flag` *should be set to 0 if reading the attributes, 1 if setting them.* `Attr` *contains the file's new attributes if setting them. After the call, check the following bits of* `d0` *for the attributes:-*
0 – Read only
1 – Hidden
2 – System file
3 – Volume label
4 – Subdirectory
5 – Archive
Note that the archive bit is not set correctly with GEMDOS versions below 0.15.

Should you require all this information in one go, then you can call `Fsfirst`*. First find the value of the current DTA, or Disk Transfer Address, where a file's information will be stored, using* `Fgetdta`

```
 move.w #$2f,-(sp)
 trap #1
 addq.l #2,sp
```

save the value in `d0` *and call* `Fsetdta` *to install your own DTA*

```
 pea my_dta
 move.w #$1a,-(sp)
 trap #1
 addq.l #6,sp
 bss
 even
my_dta
d_reserved ds.b 21
d_attrib ds.b 1
d_time ds.w 1
d_date ds.w 1
d_length ds.l 1
d_fname ds.b 14
```

And call `Fsfirst`.

```
 text
attribs equ 0

 move.w #attribs,-(sp)
 pea my_file
 move.w #$4e,-(sp)
 trap #1
 addq.l #8,sp

 data
my_file dc.b 'M:\COPY.WRD',0
```

All the information is stored in `my_dta`*. Restore the old DTA using* `Fsetdta` *once you've finished.*

XAcc-ting Standards

Could you explain how *Write On* "talks" to Desk Accessories like the Wollis Key Show
G Prentice, Camberley

stf: *This is achieved using what is known as the XAcc protocol, a standard used to send information between Accessories and executable programs. Messages are sent using the AES* `appl_write` *call, and picked up at the other end with* `evnt_mesag` *or* `evnt_multi`*. A program or accessory may support various types, or levels, of messages. Level 0 programs can't exchange data, but do get to find out what programs and accessories are running. Level 1 programs can exchange ASCII data, and level 2 enables transmission of pictures in GEM Metafile or bit image IMG format.*

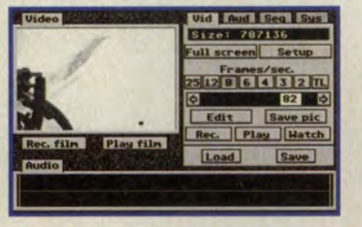
Before any messages can be sent, a series of handshaking must take place so that all the programs get to meet each other, learn what level messages they understand, in addition to each other's application id, necessary for `appl_write` *to know where to send messages.*

The manner in which the handshaking takes place and in which messages are relayed is a little too detailed to print here. However, Compo, who brought you the Write On and That's Write packages, have published details, and can be contacted on ☎ 0487 3582 during office hours.

from my TV into my ST and use them with *VideoMaster?*
D Strazds, Doncaster

A *Before you can get any kind of TV image into VideoMaster at all you need the VideoMaster cartridge itself, which is £69.95 from HiSoft AVR (☎ 0525 718181). Once you have the cartridge you can input images from any TV with composite video output sockets – these are usually found on the back of the TV or under a flap at the front. Don't forget you can import Degas and Neochrome low resolution pictures into VideoMaster to create animations and sequences.*

■ **Hugging the ground, the boys of 633 Squadron fly into action over the desert in the *VideoMaster* version of *Desert Strike*...**



■ **...as they swoop low over the sand dunes on the way to a hot target one of them suddenly realises that he's left the gas on back at base.**

Multi-line BBS

COMMS

Where can I get a serial expander port for my ST? Michtron BBS can support up to four telephone lines but I have been unable to find the serial port adaptor.
C Lyon, Hawaii

A *We contacted Bath BBS who use multiple lines with Michtron BBS to find out where they got their adaptor.*

The adaptor is called the DC Port and was produced by Double-Click Software in the USA. Unfortunately Double-Click are no longer trading so the DC Port is not available unless anyone has a second-hand one for sale, so it looks as though you'll have to stick to a single line BBS for now.

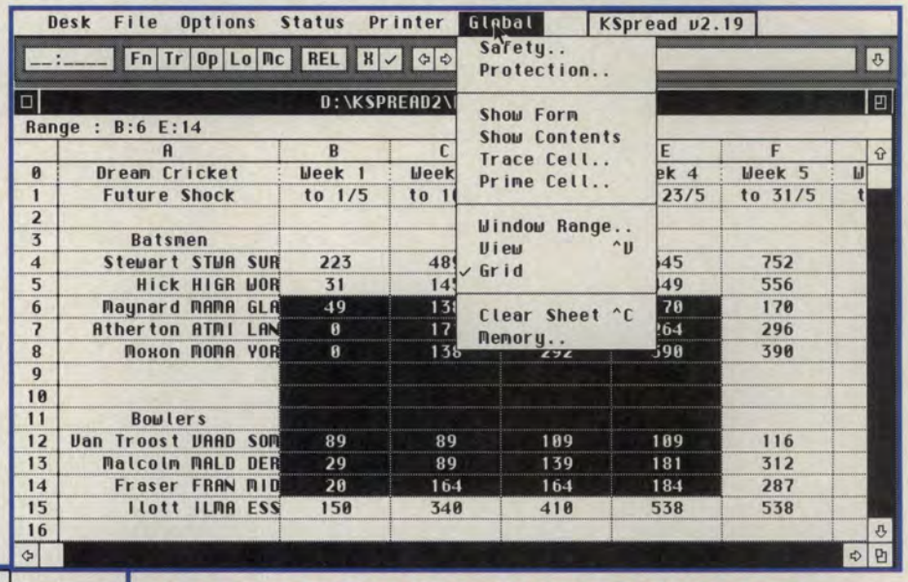
GOT A PROBLEM?

Send your ST related problems to ST Answers, *ST FORMAT*, 30 Monmouth Street, Bath, BA1 2BW. Please indicate the type of problem on the envelope.

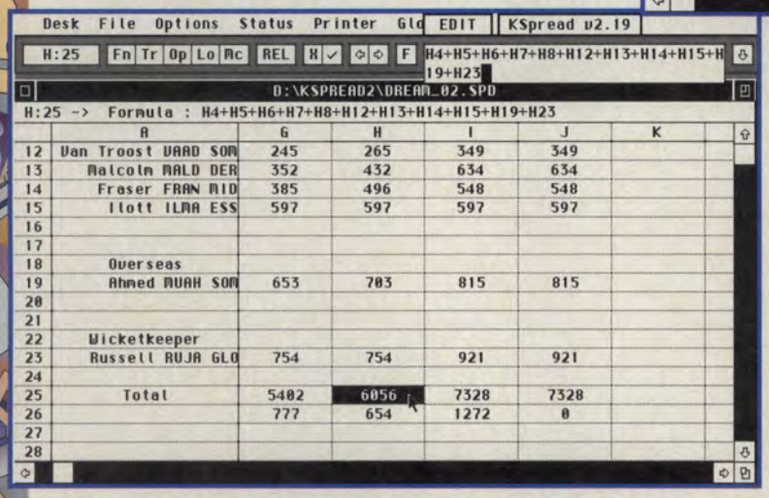
SPREAD THE WORD

Spreadsheets can be difficult to understand. *ST FORMAT* offers some helpful hints for using *K-Spread 2*...

Way back in the mists of time when *ST FORMAT* was still relatively innocent in the ways of the world and Paula Richards was just a lowly production assistant, we cleverly sellotaped *K-Spread 2* to the front cover of *STF* 36. *K-Spread 2* is a spreadsheet – a specialised program enabling you perform complex mathematical calculations on a large grid. Spreadsheets are the main software used by the business world to calculate projected sales and profit and loss, and for collating statistics.



■ It's a spreadsheet - run for your lives! Actually, it's not that bad really. Using spreadsheets can be fun, honest. Where are you going?



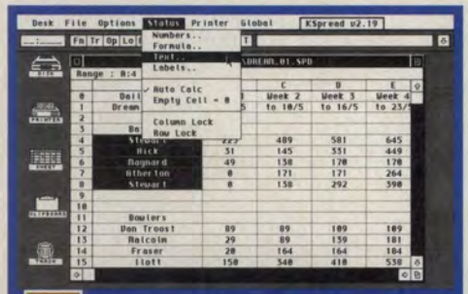
■ Now come on! Entering formulae is dead easy, didn't you do maths at school? See how the total in H:25 is made up by adding all the other H cells together. Simple, huh? Your mates'll be dead impressed.

But what use is *K-Spread 2* to you? Even if you don't run a small business you can find uses for this type of software – for example, it can be invaluable if you run a club or a sports team. As treasurer of his local skittle team – the Railway Inn – Clive Parker uses *K-Spread 2* to calculate the average scores of the members of the team over a season, and also uses it to work out the value of the skittle funds collected on a weekly basis. He even uses it to keep track of his team's points in the Dream Cricket league in the *Daily Mail*, and you wouldn't believe how badly they're doing.

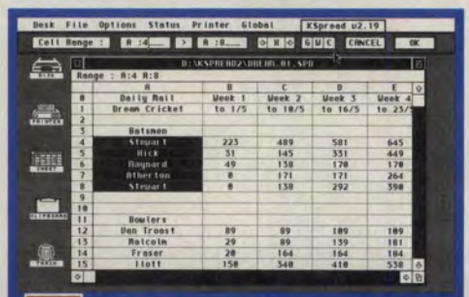
Getting a good view

One of the problems with any spreadsheet is the limited amount of information that can be displayed on screen. One way of showing more info is to make the spreadsheet window as large as the screen by clicking on the Full Window button in the top-right corner of the window. This makes the window wider but doesn't enable you to see any extra rows. Go

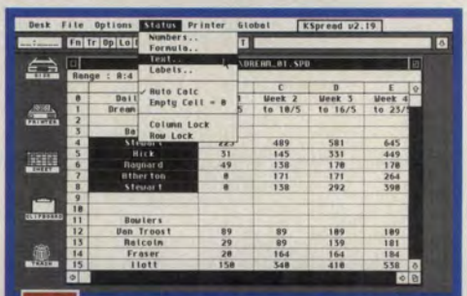
Using the Status menu to customise text displays



1 To align the players' names so that they're ranged to the right instead of being centred, click on the first cell you want to alter and drag the mouse down to the last cell, highlighting them. Select the Text... command from the Status menu.

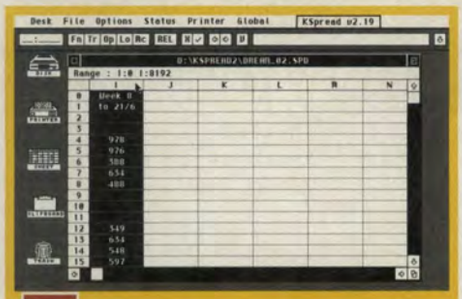


2 Select the right arrow in the Justify box of the dialog box that appears. The example line of text in the top of the box shows you what effect this has on your text. Now select the Range button, wait for the Cell Range bar to appear and click on OK.

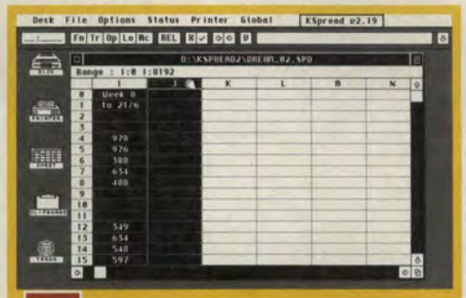


3 After a second the screen shows the block of text cells altered to your new style. Now repeat this function for any other text you want to customise. You can use the same method to change numbers, labels and formula cells.

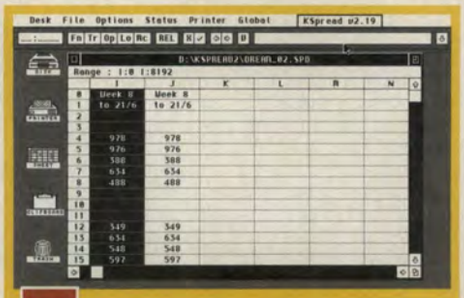
Copying columns and updating formulae



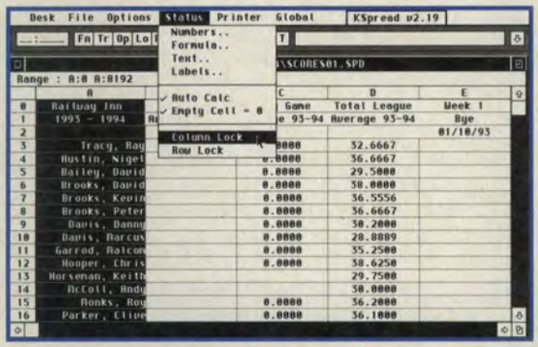
1 **If you're creating almost identical columns don't go entering the formulae by hand into every column. All you have to do is copy columns by dragging and dropping. First, click on the bar at the top of a column so it becomes highlighted.**



2 **Drag the column over to the next column so that it too is highlighted, then release the mouse button. In the Row Range bar the second number is the highest row number visible on screen. Change to the highest row number in your sheet.**



3 **Click on OK and a dialog box appears asking if you would like formula amendment. Click on Yes and the original column is copied, with all the formulae modified to match the new column letter. You can now edit individual cells with new info.**



Okay, we're just about to lock column A into position for reference purposes. Stand back, you don't want this to go off on your face!

to the Global menu and select the View command. This reduces the size of the character set so that you can see twice as many rows on screen, and works best if you have a high resolution monitor.

Problems sometimes occur when you are entering data related to specific rows, but you are not sure what each row should contain, because the first column has scrolled off the left of the screen. This is where the Column Lock command comes in. Select the column where your data is identified – we've used column A – and click the letter at the top so that the column becomes highlighted. Now select the Column Lock command from the status menu. When you return to the main screen and scroll the sheet to the left, column A remains on screen, and can be used as a reference point. You can lock any column or row in this way to ease data entry.

Formula for success

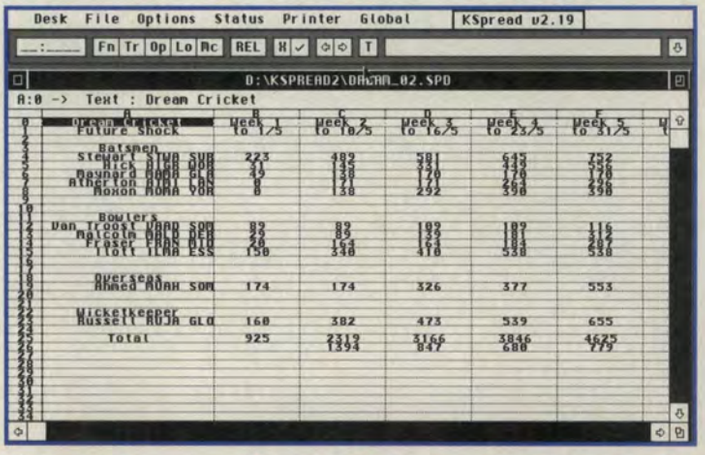
One of the most difficult aspects of using a spreadsheet is getting to grips with formula *(scream)* entry and updating. Relax. Using formulae isn't that difficult; it's just a matter of basic maths.

All you have to do is remember a few simple rules. When entering numerical data into a cell it should be just that – numbers. To enter numbers, select the V (for Value) option, which is next to the Edit box, and is the default data setting for *K-Spread*. You only need to select Formula Entry (F) when you actually want *K-Spread 2* to perform a calculation and generate a result.

Say you wanted to work out the value of a column of figures, including VAT, in cell A:10. There are two ways you can go about this. You can enter the formula A1+A2+A3+A4+A5 in A:8 to give the total excluding VAT. In A:9 you enter the formula A8*0.175 to give you the VAT, then in A:10 you enter the formula A8+A9 to give you the total including VAT.

Alternatively you can enter (A1+A2+A3+A4+A5)*0.175 in A:9 to give you the VAT – this adds everything within the brackets together and then multiplies it by 0.175 to give you 17.5% of the total. In cell A:10 you enter (A1+A2+A3+A4+A5)*1.175 to give you the total including VAT.

Remember, *K-Spread* is supposed to be a mathematical tool. It's there to help you, not to frighten you off with its complexity. Spreadsheets *can* be useful. No, really. ***stf***

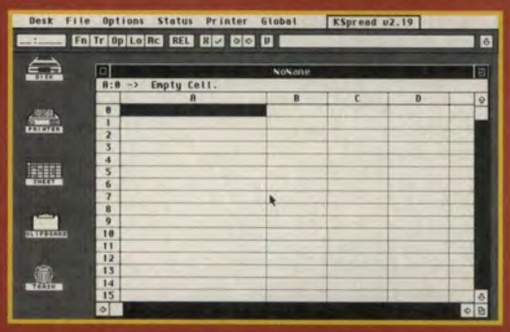


Using the View command from the Global menu enables you to get the big picture, much more of your spreadsheet appears on-screen in tinytext mode.

Making a column wider

You can search through the menus all you like, you won't find a command that enables you to increase the width of a column. That's because there isn't one. But don't worry; all you have to do is use the mouse pointer to stretch the width of a column, by clicking on the dotted line on the right of the column letter then dragging it to the right until the column is wide enough. Now release the mouse button and select This button in the dialog box to confirm the change.

It's simple to make a column wider. Just click on the dotted line to the right of the letter A at the top of the column and drag it to the right...



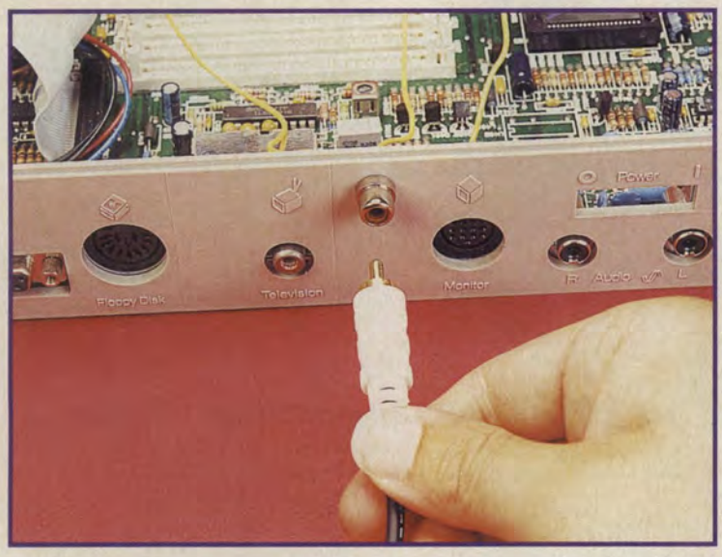
...then release the button, click on the This button in the dialog box. Now just sit back and relax while *K-Spread* automatically widens the column for you.

DIY VIDEO PORT

Your ST has a perfectly good set of output sockets - as far as it goes. Clive Parker shows you how to add an extra composite video socket to your ST

Your ST is a lot more versatile than you realise. It can be used for music, DTP, business, graphics, entertainment, video titling and animation. However, if you want to use it for video and animation you're going to have problems getting your images on to tape without using an expensive hardware solution such as a genlock. This is because there's only one way to get a decent video image out of your ST – through the monitor port.

For this reason, if you have a monitor plugged into your ST you can't get a direct composite video link to a VCR. You can use the output from the TV RF socket but the quality of the image is poor. The advantage of having a separate composite video output is that you can record the output from your new socket, while still using your monitor. We're going to show you how to add an independent composite video port to your ST for less than £3.



Yes. You can have an extra video output on your ST *and* it's dead easy to install. Hurrah!

But how?

So how is this possible? You'll need some hardware to do the job: a standard panel mounting phono socket and a couple of 30cm lengths of small gauge wire – both available from any electronics hobby store. And the only tools you'll need are a pair of pliers, some sidecutters, a hand drill with suitable sized bit (about 6mm for our socket), a soldering iron and a small bench vice.

The video signal can be taken directly from the rear of the monitor socket – when you look at the socket from inside your ST the composite video connection is the second from left. All you have to do is carefully solder a wire to the internal connection and another to a ground signal and then link them both to the phono socket. It's so simple that even a relative novice with the soldering iron should be able to perform this modification.

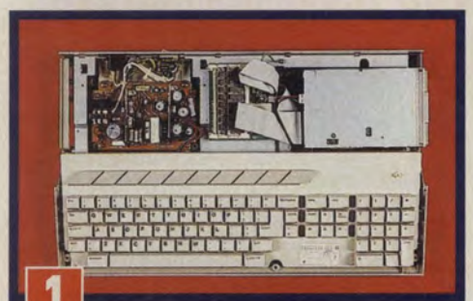
The only problem that may occur is the actual position of the

AND THE WINNER IS...

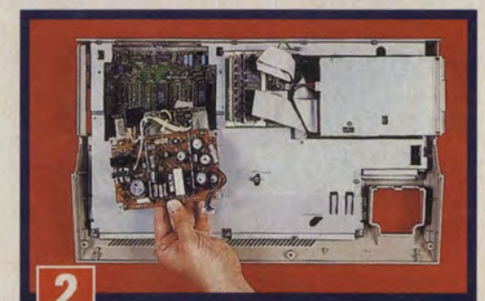
ST FORMAT £100 WINNER

David Sinnock of Downham came up with this excellent idea for an extra video port because he needed it for a project, and for sending us his idea he wins himself a crisp cheque for £100. Well done David. If you have made a simple, easy-to-perform and, above all, useful DIY modification to your STFM or STE, then send full instructions with photographs to "I Did It Myself" *ST FORMAT*, 30 Monmouth Street, Bath BA1 2BW. You could win yourself a hundred of your Earth pounds.

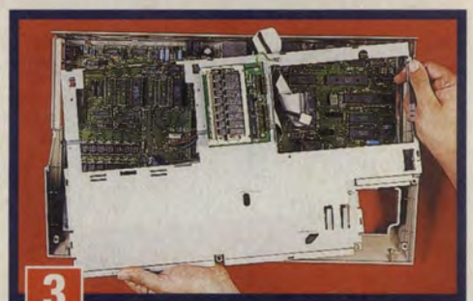
HOW TO TAKE YOUR STE OR STFM APART



1 Unplug all the leads from your ST. Now, turn it over and remove all the screws from the underside. Now carefully turn it the right way up. Remove the top half of the case by lifting it and easing to the right to disengage it from the floppy drive.



2 Unplug and remove the keyboard, then remove the PSU (power supply unit), shielding both it and the disk drive connections. Unplug the cables from the drive and remove it. Now remove the fixing screws from the PSU and gently lift it out.



3 Remove the screws holding the shield and untwist all of the retaining tabs with a pair of long-nosed pliers. Now carefully disengage the shielding from the base of the ST and lift it out, then locate the monitor port near the centre of the back panel.

new socket – where you site it is entirely up to you. Just make sure that you don't complete all the soldering only to find you can't get the shielding back into place. It pays to think ahead. Take a look at the walkthrough to the right.

Er, not absolutely every ST

You can upgrade any ST that has a TV aerial socket in this way. However, if you have an older 520STF or 1040STF or MegaST without a TV port then you cannot add the video port, because the composite video signal is generated by the same device that creates standard RF (radio frequency) signals for TV sets – the modulator. For this reason it's probably a good idea to check whether you have a modulator installed before you attempt this project.

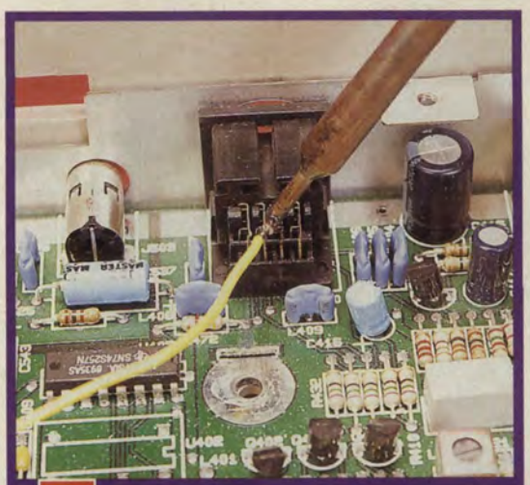
"Even a relative novice with the soldering iron should be able to perform this modification"

STFM Audio Out port

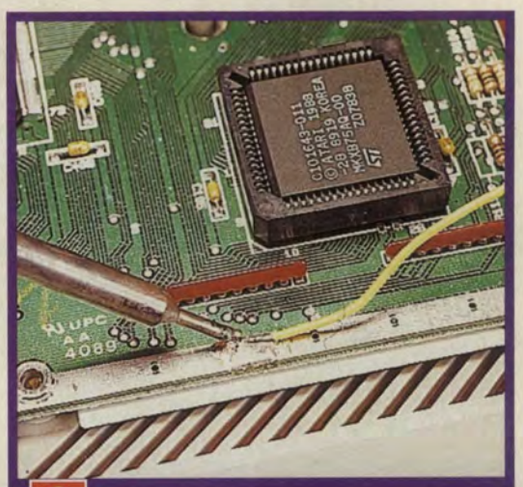
If your STFM could really do with built-in Audio Out ports, why not install them yourself using the instructions shown here? Then you can connect your STFM to a hi-fi and really make some noise!

To do this, just follow the walkthrough shown to the right, but with one minor difference: instead of soldering the wire to the second monitor port leg – Composite Video Out – solder it to the first leg – the Audio Out pin. Hey, it may only give you mono audio output but it certainly sounds great though our sound system. ***stf***

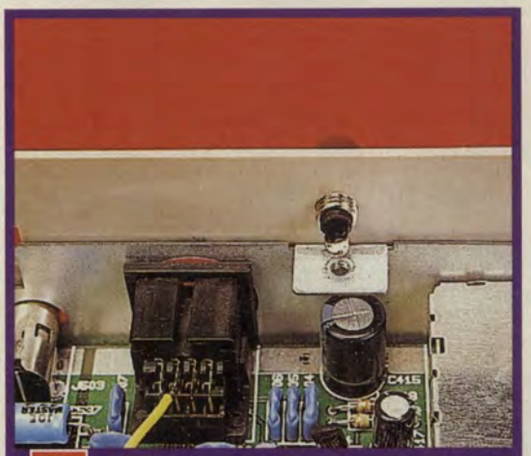
ADDING EXTRA VIDEO (AND AUDIO) PORTS TO YOUR STE/STFM



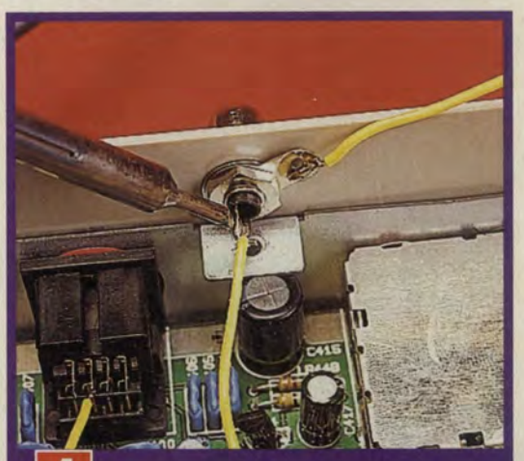
1 Locate the monitor socket inside your ST, it's soldered directly to the main circuit board with four 'legs' visible. You only need concern yourself with the second leg from the left, Composite Video Out. Lightly tin the corner of the second leg and then solder a 30cm length of wire to it.



2 Now you need to get a ground signal from your ST. You have to pick up the signal from the 8mm strip of metal running around the entire outside edge of the motherboard, because it's a grounding point. We've chosen a point on the front edge of this STE board under the keyboard.

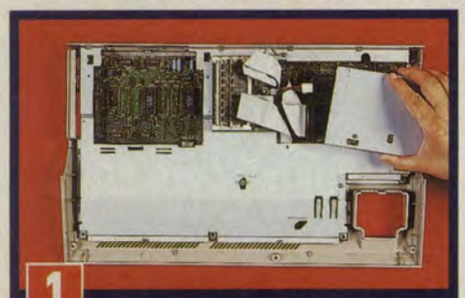


3 The next job is to site your new video socket. We've picked a point near the monitor socket and above the shielding. Make sure you can replace the shielding before you solder the wires to the socket. If you can't then thread the wires out through a gap in the shield and replace it.

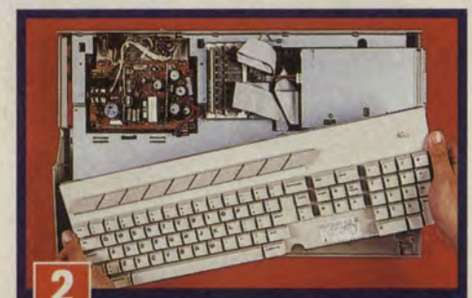


4 Tin the connections on the phono socket with solder and fix it in place. Remember that the centre terminal of the socket carries the video signal and the outer terminal carries the ground signal. Ensure that you connect the right wires to the correct terminals, then rebuild your ST.

HOW TO PUT YOUR STE OR STFM TOGETHER



1 Remove the new socket and thread it through the disk drive hole in the shield, and re-fix. Replace the main shield on the motherboard, ensuring that you don't snag the wires. Now replace the disk drive and fix it in place.



2 Connect the power and data cables to the disk drive - they only fit one way up so you shouldn't have any problems. Replace the PSU, fix it down and reconnect it to the motherboard. Again, the connection only fits one way around.

3 Replace the PSU shielding and fix it in place, again avoiding snagging your new wires. Replace the top half of your ST's case and carefully turn it over and replace all the fixing screws. Your modification is now complete. Make yourself a nice cup of tea.

TOS 2: THE

Explore the subtle mysteries of TOS 2.06 with part two of Clive Parker's handy pocket guide to the Desktop

You can't get a better version of TOS for your ST. No, really, TOS 2.06 is the ultimate hardware upgrade for any STFM or STE, and makes your ST much easier to use.

This is because many of the routines used in older version of TOS have been completely rewritten to make them faster, and many new routines and functions have been added to further enhance the 'usability' of your ST. The designers of the new TOS have taken a long, hard look at some of the features found in alternative Desktop programs like *NeoDesk 3* and included similar features in TOS 2.06.

Silicon implants

Once you've got your shiny new TOS silicon chips installed in your ST, you suddenly find that you have loads of new menu commands available that you've never seen before. Most of them are straightforward enhancements of your old TOS menus, but some are completely new.

New menu functions include a search function, delete option, the ability to select all files in a window, a file display mask, icon installation functions, automatic installation of hard drives, the ability to load in alternative NEWDESK.INF files and assign up to 20 programs to the function keys. All good stuff.

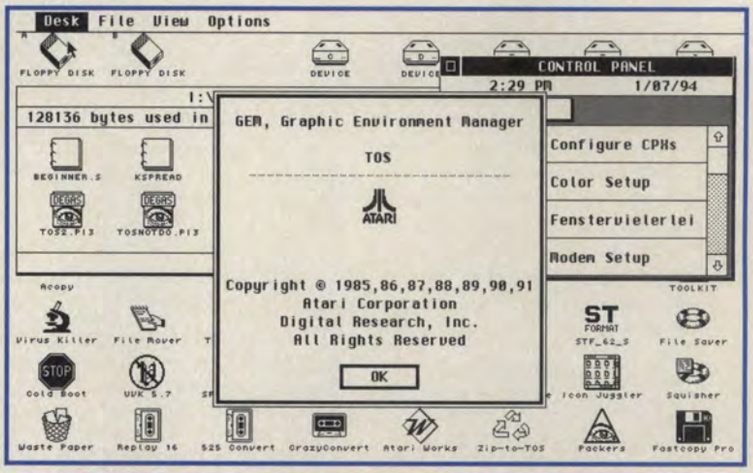
"TOS 2.06 is the ultimate hardware upgrade for any STFM or STE, and makes your ST much easier to use"

Searching for meaning

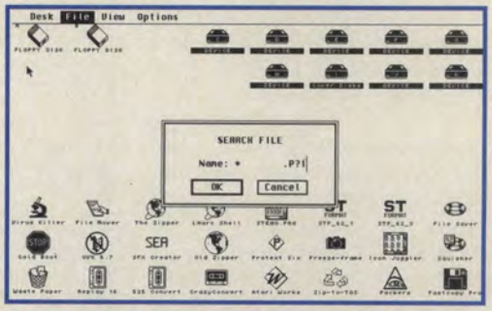
If you use a hard drive then the Search command is something that you'll soon come to rely on to find files and folders lost in the depths of your partitions. Remember that you can nest folders up to eight deep, which makes it dead easy to forget where you've stored a particular file. The Search command is useful because you may have hundreds or even thousands of files and folders on a single hard drive partition. You can also use the Search command with floppy disks if you wish, but it's not quite so useful.

To use the Search command just highlight a drive icon, or selection of drive icons, and go to the Search command in the file menu. Type the search string in the alert box, press <Return>, and your ST searches for all matching files and folders.

You can use wildcards in your search. A wildcard can be either a * which you use to replace complete file names or file extenders or you can use a ? to replace the individual letters. For example, if you enter S*.PRG as your search string your ST looks for every file with a PRG file extender and a file name that begins with the letter S. If you enter S????.PRG as your search string then every program file name five letters in length beginning with S is searched for.

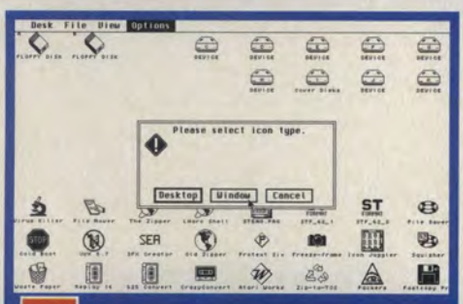


■ TOS 2.06 in all its high-resolution, customised-icon, XControl-supporting, multiple-copyright-dated, all-rights-reserved glory. Not bad, eh?



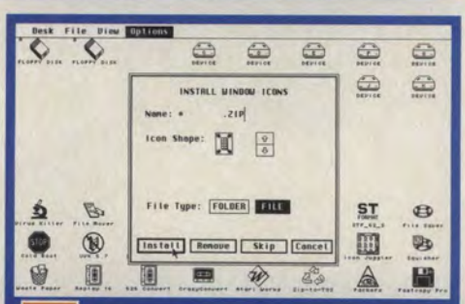
■ Highlight the drives you want to search for files and enter the search string. Here we're looking for all *Degas* low-resolution pictures on our hard drive.

HOW DO YOU SET UP A CUSTOMISED ICON?



1 Go to the Options menu and select the Install Icon command. As soon as you select the command an alert box appears asking whether you want to install a Desktop icon (for disk drives, printers or trashcans) or a Window icon for software.

2 Select the Window option. A dialog box appears with a text field at the top, where you input the name of the file or files to which you want to assign an icon. You can enter a complete file name or use wildcards to assign an icon to a range of files.



3 Use the two arrow buttons to choose an icon stored in memory. They load from the DESKICON.RSC file when you boot up. Once you have decided on an appropriate icon, click on the Install button. The file now appears with the new icon.

RETURN

■ On the high-resolution screen you've got plenty of room for up to 56 Desktop icons - that's eight across and seven down. We actually use all these programs installed on the Desktop of Clive's STE.

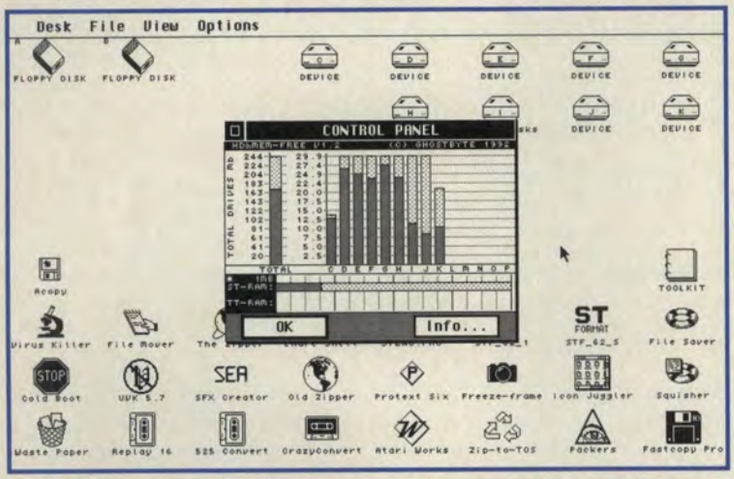
Taking control

Probably the best idea Atari have come up with is the XControl Panel (eXtendable Control Panel). When TOS was first designed, a rather silly limit of six Desk Accessories was imposed on the system. This meant that if you had a large selection of Desk Accessories you had to re-boot your ST to change the Desk Accessories in memory. A solution such as MultiDesk Deluxe enabled you to load and unload Desk Accessories at will, but it was an expensive and inelegant way around the problem.

So instead of increasing the number of Desk Accessory slots in TOS 2.06, some bright spark at Atari came up with the XControl Panel. The XControl Panel takes up a single Desk Accessory slot – enabling normal Desk Accessories to be loaded alongside it – but enables a new kind of Desk Accessory called a CPX (Control Panel eXtension) to be loaded or unloaded at any time.

There are numerous CPXs available both from PD libraries and BBSs, and most commercial programs now come with a small CPX enabling some aspect of the program to be controlled from the Control Panel – *UVK* now has a small CPX and programs like the *ICD Professional Hard Drive Utilities* also use a CPX to toggle system functions.

The XControl Panel works in exactly the same way as any other Desk Accessory – it must be in the root directory of your boot disk. However, you can store CPXs in a folder and tell XControl where to find them, which prevents your root directory from getting clogged with loads of CPX modules.



■ One handy little CPX you can use with your system is the Hard Drive and Memory Free CPX. It tells you exactly how much disk space and memory you have left, at a glance, using an attractive bar chart effect. Businesslike.

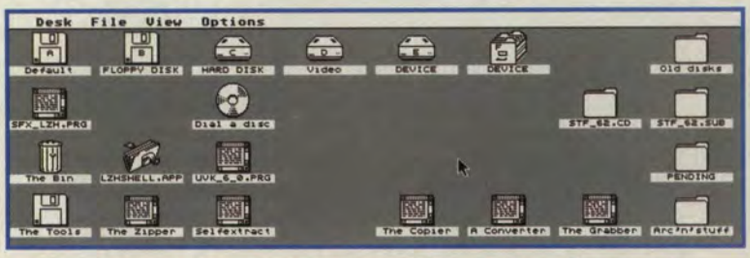
Individual information

When you boot up your ST a file called DESKTOP.INF loads into memory automatically. This contains all your customised information such as your Desktop layout and details of installed applications. On STFMs and STEs you can only load a DESKTOP.INF file by booting your ST, which can be a problem if you use different Desktop setups for different tasks.

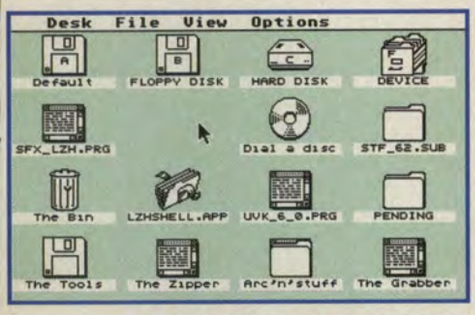
If you use TOS 2.06 the file is called NEWDESK.INF and contains additional information such as icon assignments, function key details and auto-booting GEM programs. Thankfully, the option to load different sets of NEWDESK.INF files has been included in TOS 2.06 – another idea 'borrowed' from *NeoDesk*.

If you are using your ST for low resolution graphics then set up your Desktop and select the Save Desktop command. After saving edit the NEWDESK.INF file name to GRAPHICS.INF using the Show Info command from the File menu. Now switch to medium resolution, set up your Desktop and use Save Desktop command again, then edit the NEWDESK.INF file to MEDIUM.INF. You can set up as many INF files as you like and load them at any time using the Load INF File command.

This can be a boon when switching between different resolutions. The low-res Desktop can only display four icons across the screen, while the medium-res Desktop can display eight icons across the screen, so if you were to switch to low resolution with a medium-res NEWDESK.INF file installed, many of the icons would lie on top of each other on screen. ***stf***



■ Not quite as much room on the medium-resolution Desktop. You can only get 32 icons on screen, but it's still a highly accessible setup.



■ Now we've nearly run out of room for icons - you can only fit 16 of the blighters on the low-resolution Desktop. Remember you can place folders on the Desktop with several different programs inside.

INSTALLING DRIVE ICONS

If you have TOS 2.06 you don't have to install each drive icon individually like you do in the older versions of the operating system. Select the Install Devices command from the Options menu, then your ST searches for all connected drives, creates an icon on the Desktop for each drive detected and assigns a drive letter. This saves the bother of using the old Install Drive command to laboriously create a drive icon.

■ No more individual icon-creating chicanery with TOS 2! Just zip to the Install Devices icon and watch those drive icons appear as if by magic.

DIGIT MASTERCLASS

Get started with the best music tracker for your ST. Andy Curtis shows you how

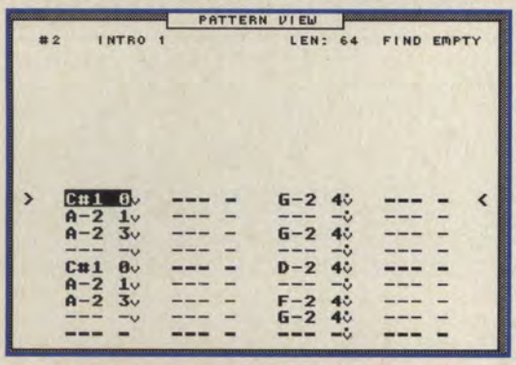
Okay, you've loaded the *Digit* demo song, seen how good it is and now you're keen to get going with your own first smash hit. Don't be put off by the dazzling array of switches, boxes and read-outs in front of you. We're going to cover the basic things you need to know in this easy tutorial. To try out the features as you read, we suggest you load the demo on this month's Cover Disk, called EZ4U2SAY.SNG.

Pattern Display

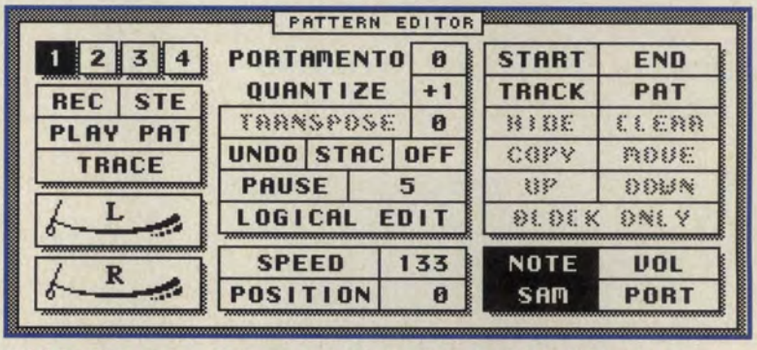
This is where the actual notes you enter are displayed in their four columns, one for each available channel. Notes can be entered in a variety of ways using your ST's keyboard or a MIDI keyboard – we recommend using the computer's own keyboard. To get a feel for where the notes are, select a sample from the sample list and click on TEST on the right of the screen. Now press some of the letters on your keyboard, and you'll hear pitched sounds as if you were playing a piano keyboard.

Practise for a while till you get the hang of where the notes are. Pressing the <Spacebar> cancels the test feature and the next letter key you press is entered in step time on the Pattern Display. This is the most common way of entering notes in a pattern.

Any changes you make using other sections of the program are reflected graphically here. Remember to click at the top left of the Pattern Display where it says "No-name" and enter a name for the pattern you're working on.



■ The heart of the program. This is where you'll actually enter the notes and create patterns ready for arranging. Exciting, isn't it?



■ All the tools you need to work on patterns till you have honed them to perfection are here, plus a couple of groovy VU style meters which flicker seductively whenever *Digit* is playing your music.

Pattern Editor

First, select the channel you wish to work on by clicking in one of the boxes labelled one to four. You can enter notes in step time or in real time if you wish. Click on REC to enable real-time recording. The next note you play activates the pattern, and as it plays you'll record on the selected track with the current sample.

If you wish to add a staccato effect, as we have on the demo, select the channel to work on and the position to start from using the up and down cursor keys. Now simply click on the STAC button to change the desired notes to staccato notes.

> **"You can go back in at any time and edit any or all of the patterns until you get the effect you want"**

The controls on the right-hand side are used to select whole sections of music for copying, deleting or processing in logical edit. Logical edit enables you to work on whole tracks or even the whole pattern. You can use it to reduce or increase the volume of a selection of notes or to transpose a whole channel. There are many possibilities to explore.

The Sample Manager

All *Digit* songs are made up of sampled voices. The sample manager enables you to import almost any sample, in SAM format, and make it work in *Digit*.

IMPORTING AVR SAMPLES

1: About halfway down the main screen of *Digit* is a box with SAMPLER marked in it. Click in this box.

2: Now you'll be looking at the Sampler screen. At the left-hand side of the screen there are two columns full of click boxes. Click on the one marked LOAD. Your file selector will appear; load the AVR sample of your choice.

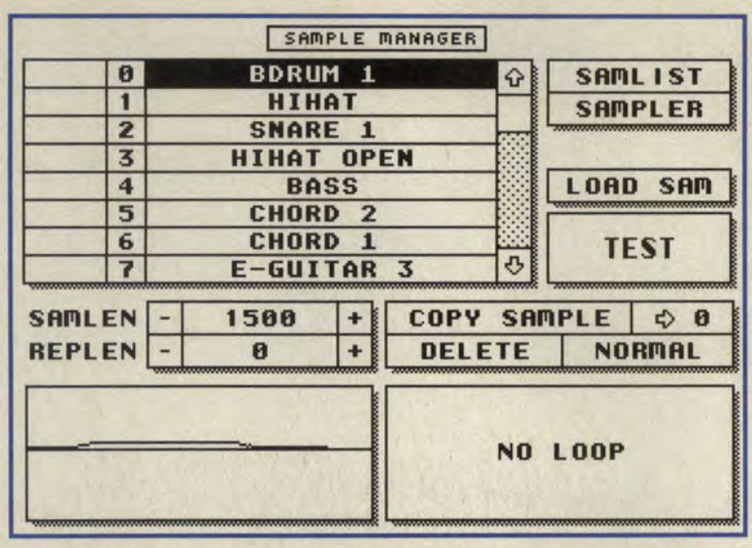
3: The ZOOM section is on the right-hand side of the screen. Left-click on the IN/OUT box several times to zoom in on your sample. If it appears to vanish when you do this use the arrow on the left-hand side of the scroll bar underneath the sample window to bring it into view again.

4: Now click in the PLAY box in the centre of the screen and hit a letter key on your ST's keyboard. You'll hear the sample, but if it's very loud and distorted click on CONVERT on the right-hand side of the screen and then listen again. The sample should now sound much more like you expected it to.

5: Next, click on PUT on the left-hand side of the screen and place the sample in the next available slot. Now you can leave the Sampler screen. Click on EXIT.

6: On the drop-down File menu on the main screen select SAMPLE from the Save section and save your sample with the SAM suffix.

If there's a "click" or "pop" at the start of the sample drag the bars in the sample window over the very beginning of the sample and use the CUT box to remove it.



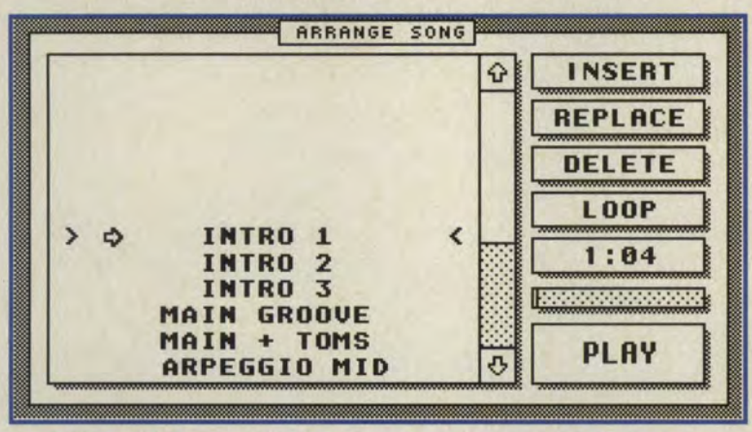
■ This is the sample management section of the screen. *Digit* uses SAM format samples, which can be easily created from AVR samples, using the supplied sample editor. Nothing if not versatile.

The LOAD SAM button will only load true SAM format samples. You'll soon build up quite a collection of them. To start yourself off you can save the samples from any *Digit* songs you have. Simply load the SNG in and select the desired sample. Saving is done from the File drop-down menu. This is the only Save function enabled in the demo version.

The Arrange page

As you create patterns that you'll then build together to form a full piece you will need to enter them in the correct order in the Arrange page. Select the pattern to insert, then click on INSERT. The first pattern you enter is the loop point by default, but you can change that later when a few patterns are loaded, by moving the scroll bar down to the desired loop point and clicking on LOOP.

Now you are ready to hit PLAY and listen to your music. The <Spacebar> ceases playback. You can still go back in at any time and edit any or all of the patterns until you get the effect you want.



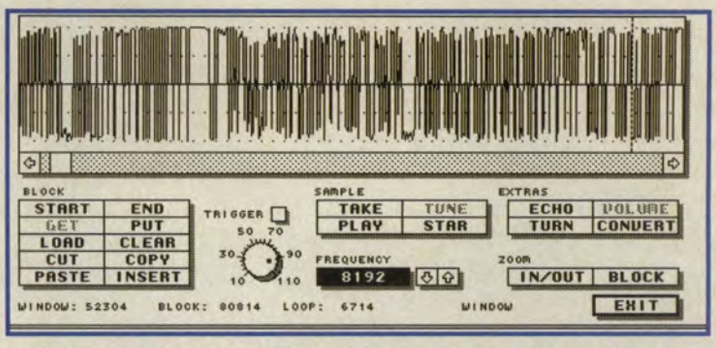
■ When you've assembled a few patterns you can play with the Arrange page. Patterns can be placed in any order and the loop point set. Until you've entered some patterns in the Arrange page the PLAY button won't work.

General comments

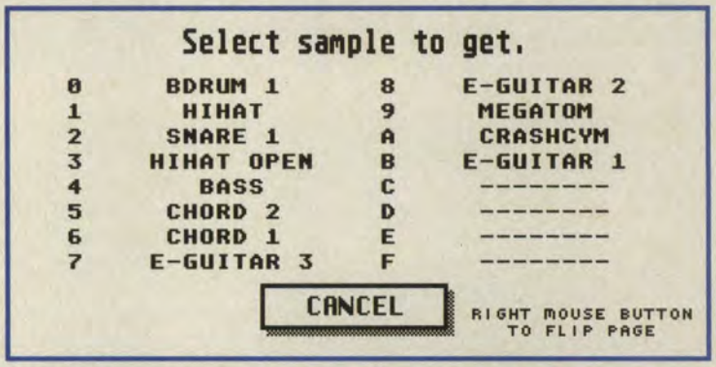
The tone controls are accessible from the Parameters drop-down menu. They're supplied set quite high, and on most systems we tried this was too much, with distortion starting to creep in. Try setting your bass very low and the treble at around 12 o'clock. Through the STE's DMA playback this sounds impressive.

Have a good listen to EZ4U2SAY.SNG and note how a lot of the patterns are actually copied and altered slightly to make the music more varied. It's easy to mix samples and get a full drum kit on one channel, leaving the rest of the channels free for other instruments. Think about a middle section for your piece as well, something that contrasts with your main idea. We went a bit overboard with the demo by launching into a wild Highland Fling, but remember: having fun is what it's all about.

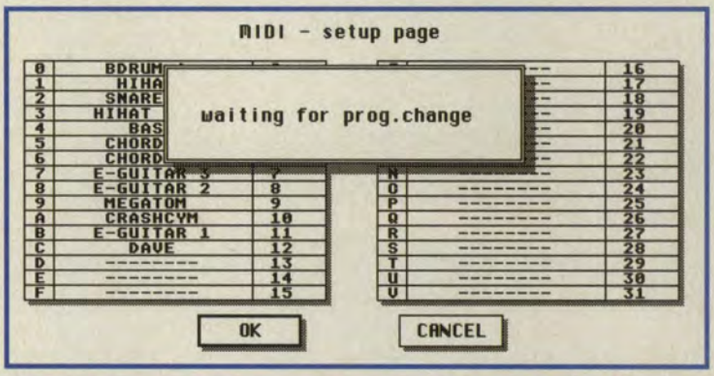
So. With all this versatility and power at your fingertips, how can you resist *Digit?* The answer is obvious – you can't. ***stf***



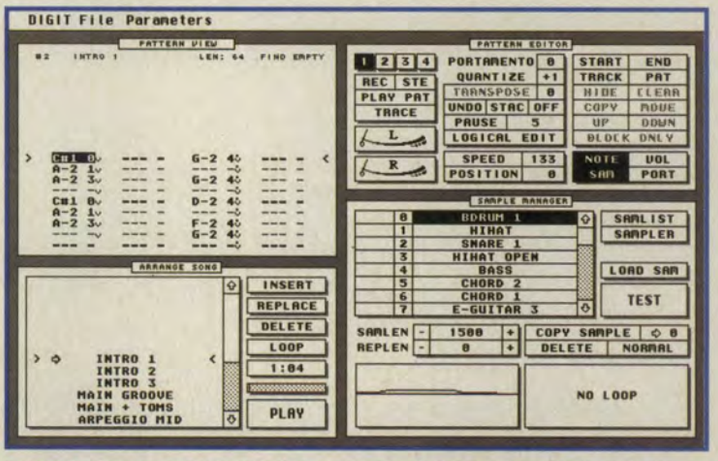
■ *Digit* even has its own sampling package built in. You'll need the Sample Star cartridge to use it for actual sampling, but it's still great for loading, converting and editing samples from elsewhere.



■ Why not import samples directly from the main screen into the sample editor and hack them about madly until they sound completely ridiculous? Because it's very silly. That's why. We do it all the time.



■ Feel free to assign MIDI program change numbers to each voice. It's completely pointless and sad, but feel free to do it anyway. We plugged away for hours and came up with the EZ4U2SAY song.



■ If you're impressed with the demo version of *Digit*, you can get hold of the full version of the program from CGS ComputerBild (☎ 081 679 7307) for £39 (saving £20). The price includes a 100-page manual.

GAMEB

Buy the game. Get stuck on the first level. Give in and write to us. You know you want to

CASH PRIZE WINNER!

Abominall

Issue 47's Cover Disk was, like all the others, excellent. Among the utilities and demos was a game that Nigel Sarsfield of Nottingham seems to have mastered in his cheating, dastardly way. First off, the complete set of level codes:

1	START
5	OOOER
10	FILMS
15	ATARI
20	QUEEN
25	GUMBY
30	FRIED
35	DWART
40	MURAL
45	NIGHT
50	FINSH

It's easy to see how clever old Nigel got all these codes, though. He discovered that if you type CHEON at the title screen, certain keys become activated throughout the game itself:

Q	Skip one level forwards
W	Skip ten levels forwards
A	Skip one level backwards
S	Skip ten levels backwards

The numerical keys alter your number of jumps (hitting 9 will give you nine jumps), and hitting the <Return> key lets you replay a level.

Defender 2

I'm beginning to get the feeling that Nigel Sarsfield isn't so much an ST owner as an ST club. He and his army of friends have discovered a few more cheats you might find useful. Like for *Defender 2*, where if you type GOATY you become completely invincible. A few level codes to try would be handy too, like: LEMAC, MAMOG, ZIPPO, FUNKY, LAGER, DONKY, and DAFAO.

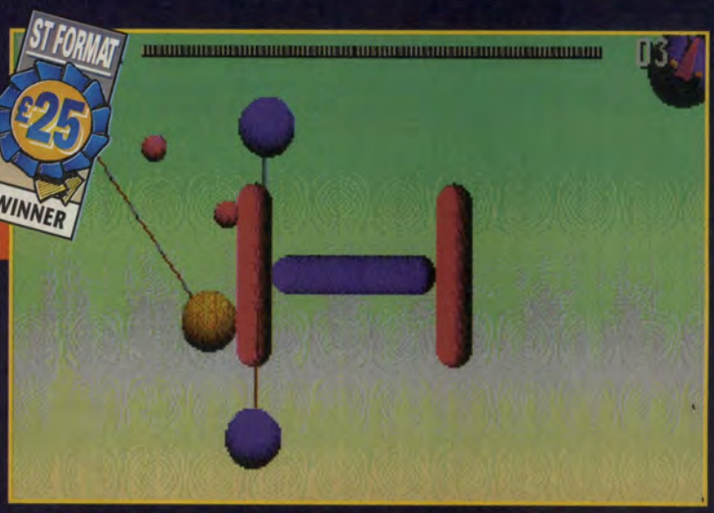
Strider 2

Excellent though it is, a lot of people have trouble guiding our striding friend through the hazardous world of, erm, Stride (writer casts aside reference in favour of creativity). Handily, typing SWIFT at any point will freeze your timer, giving you that extra little infinity in which to complete a level.

Lotus Esprit

For in-game help, the players' names should be ANGEL DARK and HARVEST HOME respectively. To turn a relatively passive game into a rolling shoot-'em-up, try the names MONSTER and SEVENTEEN. Are there any other names out there that we don't know about?

■ His knuckles went white with desire, his Lotus exploding on the highway like a slug from a .45. He needed motorway services. He needed to pee.



■ *E-Motion* was originally merely a programmer's demo. Strange, then, that it's one of the best games ever. In fact in the 'free-flaoting sphere genre' it's only topped by its sequel *Vaxine* - which was once a superb *STF* Cover game.

Sim City

Short of cash to keep your people happy? Well they can sod off, can't they. If you need a bit of spare change for the weekend (to build a stadium or something), pause the game (by setting the game speed) and type FUND in upper case, saving your city afterwards. At this point, set the game speed to fast and reload your city.

For the big bucks, hold down <Shift> and type either CASH, MONEY or FUND. If you do this too often you'll get a visit from Mr Earthquake, so beware.

E-Motion

For extra help with this little ball-breaker, type MOONUNIT on the title screen and enter the game as usual. These keys should help you:

F1	Advance a level
F2	Advance ten levels
F3	Go back one level
F4	Go back ten levels

Eliminator

Anybody want infinite lives? If you've got about half an hour to spare, we could have just what you're looking for. We'll break this into steps for the faint-hearted:

- On the title screen press the HELP button then type in HANDEL.
- On starting the game, you'll appear on level 9. With your first life, move left into the water.
- With your second life, crash into the oncoming green alien.
- Your third life must be spent shooting the alien and crashing into the water on the right. The level restarts.
- Shoot the alien and move to the right of the track. As the ramp approaches move right towards the water and just before you sink you'll hit the ramp and go flying.
- You'll also suddenly discover you've got infinite lives.
- Look surprised.

■ "It's supposed to portray the futility of existence when compared to the simplicity of nature." I think.

Vaxine

Everybody loves US Gold's molecular action game, don't they? What most people don't know is that there are 100 levels to conquer. In

USTERS

fact, most people hide behind the sofa when they find that out. If you'd like to see the game through to the end, start the thing up and type WILDBEESTE. From now on, throughout the game, the following keys will do interesting things:

- F1 Skips a level
- F2 Repeats a level
- F3 Skips ten levels
- F10 Skips a level and picks up a bonus

Carrier Command

Being crap at naval and air battles is no disadvantage if you've got the right cheats. Nigel Sarsfield and his friends have discovered that if you pause the game during play and type GROW OLD ALONG WITH ME, the numerical keypad does things:

- 6 Shows the colour palette used (why?)
- 7 Advances the carrier when held down
- 8 Prints lots of strange numbers at the top of the screen
- + Protects the Manta and Walrus from missiles and collisions
- - Deactivates Manta and Walrus protection

Arkanoid 2

That Nigel Sarsfield bloke and his mates really have been busy. This time, it's *Arkanoid 2*. While the game's loading, hold <Caps Lock> down and type IMAGINE. On the game's intro, type PETEJOHNSONWANTSCHEAT as one long word. When playing now, pressing S skips a level.

Dizzy Games

Love 'em or hate 'em, we've reduced some of them to a stroll in the park with a few keypress cheats. Here we go:

Treasure Island – After the game's started, type EGGSONLEGS to become totally invincible. If you type I CAN FLY, you'll gain an extra ability, but we'll leave you to work out what it could be.

Magic Land – To gain infinite lives, type DIAMONDS AND PEARLS at any point during the game. When the game freezes, don't worry – it's just paused.

Fantasy World – Type IMMORTAL on the high-score chart for infinite lives. You cheat, you.

Onslaught

The words 'never', 'heard', 'of' and 'it' spring to mind, don't they? Still, if you'd like to edit the map, call up the map screen and hold down F9 and F10 simultaneously.

Final Fight

Press F10 and type SHERIFF FATMAN, then press HELP to go straight to the end of the game.

■ *Carrier Command*, featuring Manta Rays. Do you ever get the feeling that there're a few things the US Air Force have neglected to tell us?

■ "Oh no, not again."

Hard Drivin'

For the kind of car control only previously achieved by the computer-controlled vehicles in the game, accelerate to maximum speed and press N to slide into neutral. Your car won't slow down, and it won't skid either.

Jimmy White's Whirlwind Snooker

To get a 147 break, go to the main title screen and select the Trick Shot option. Next, press F7, F4, and F1, then go back to the Option menu. Select the 147 break option.

Prince Of Persia

Press <Shift> and L to skip levels.

Xenon

On level 2, simply die just after killing the bad guy in the middle of the level. There aren't any more aliens until the end of the level.

Golden Axe

Press L when told to press a key for infinite lives.

Rick Dangerous 2

Type POOKY into the high-score table and then use the joystick to move from screen to screen.

Outrun

Type the word STARION during play to activate the following keys:

- S Skip levels
- B Extended play
- Q Program information
- T Extra time

A positive powerhouse of tips

It's not often we do this here at *STF* (in fact, it's probably a first), but every tip on these two pages has been donated by Nigel Sarsfield of Nottingham and his army of tip-finders. Nigel, The Gamebusters Big Cash Prize is on its way.

■ *Prince Of Persia* caused quite a stir when it was first released, clinching the title of Best Animation Ever. Dull as hell, though.

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WAR IN MIDDLE EARTH MELBOURNE HOUSE

Just when Gamebusters couldn't get any better, we come up with a solution to the excellent (though old) War in Middle Earth. This solution comes to you courtesy of John Critchley of Cumbria, who would have won our Gamebusters Big Cash Prize had he not been beaten (thrashed) to the post by Nigel Sarsfield elsewhere in this section. Anyway:

Part 1 - To Rivendell

• As soon as the game starts, go to the strategy screen and set the game speed to very hasty.

• Send Frodo to Woodhall, and then on to Buckland (using double time).

• Recruit Merry and head east to Tom Bombadil's house. Speak with him, then set the game speed to normal when you return to the campaign screen.

• Scroll the map towards the south-east until you locate Eomer and send him towards Rivendell. Scroll the map further east until you find Faramir, and send him to Rivendell as well.

• Return to Frodo and wait patiently until the Nazgul Lord leaves the last bridge towards the Ford of Bruinen. At this point head for Bree to join Aragorn (to avoid Wights in the Barrow Downs head directly northwards from Tom's house at 5am).

• Now head for the last bridge, letting everyone but Frodo fight if you are attacked. Then head for the Ford of Bruinen. Join Elrond on the way. When you reach the ford you'll be attacked by the Nazgul – withdraw everyone but Elrond, as he'll be able to nobble the lot of them for you.

• Now travel to Rivendell, where you will be told of the quest.

Part 2 - Activate The Allies

• Despite what you may think, you don't have to waste time in search of the lost artifacts to unite the allied forces, as Gandalf can activate the Knights of Gondor. The elves and dwarves are not needed until later on anyway.

• Two months passed while you were at Rivendell, during which time Faramir and Eomer have arrived. Join up with the two and head south-west from Rivendell to the thinnest part of the mountain range. On arrival, tell Gandalf to travel to the point where the rivers cross, on the other side of the mountain. Within a few hours Gandalf should have found a way across the mountain range.

• Head for Lorien now, where you'll meed Galadriel. Head south-east for Derningle from here. The Ents and Hourns will now be activated, and will head for Isenguard and Hornburg, meaning that no extra protection is necessary (the Ents and Hourns are fairly hard).

Part 3 - The War In Middle Earth

• Once you have united the lords and the cavalry send them under Faramir to Minas Tirith. Eomer and Theoden should remain with the Ring Bearer as protection. Send Gandalf, the Bearer and the small troop to Deringle and wait for the war to die down.

• Now all you have to do is sit and wait for 19 February. You should have around 9,000 cavalry and 1,500 infantry at Minas Tirith – if not you may have forgotten a few forces. When Saruman's army marches you will have control of the remainder of your troops, in particular the Knights of Gondor.

• Hornburg should be protected by 1,000 Hourns so it's a fairly safe bet, and you can concentrate all your forces on Minas Tirith and the great battle which will ensue.

• Now you should scroll up the map towards the elves and dwarves around Thraduil's palace. Send all the elves on the map towards Lorien and protect it from attacks from the east and south. Protect Thranduil's palace with Brand, Dain and the Dwarves from the Iron Hills. All attacks will now come from the south.

• Now all you have to do is sit back and control the battles. If all goes well you won't need to retreat from any of the major towns, and eventually the warring will cease.

Part 4 - The Ring Bearer's Quest

• The attacks on your major strongholds of Lorien and Minas Tirith should have subsided by March 20/30, though there may still be forces moving in on Thranduil's palace.

• It's now safe to send the companions of the Ring off on their quest to Mordor. The next part may seem confusing, but it is an attempt to create a smaller army to send to Mordor. This army must be able to pass by small forces, but must also defeat larger ones – going through a list of names during a battle would be time-consuming.

• Send Gandalf and Thranduil to Minas Tirith. While they're travelling send the entire army at Minas Tirith to Lossanarch.

• When Gandalf reaches Minas Tirith, split the party into two groups: Frodo and Aragorn to the east at Osgiliath, the other group remaining at Minas Tirith.

• Now give Thranduil new orders to join Aragorn at Osgiliath.

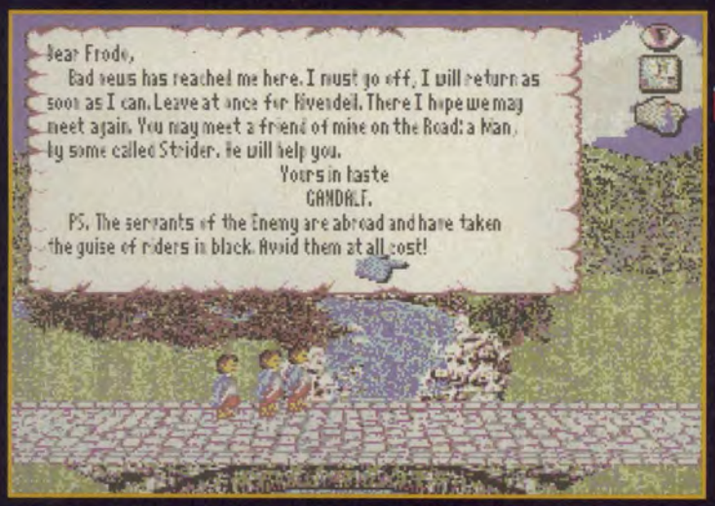
• You now have two armies: Gandalf and the Knights of Gondor, and Aragorn and the elves.

• Send Aragorn up the north road to the thin point in the mountains next to Durthang. There may be some confused enemy troops patrolling the sea.

• If you send Aragorn to Durthang, he should eventually find his way through the mountains. If there are any enemy troops there they should be easily defeated leaving you a clear run to Mount Doom. Forget about Barad-Dur and Sauron, as there is no need to defeat them. Besides, Sauron is quite scarily hard.

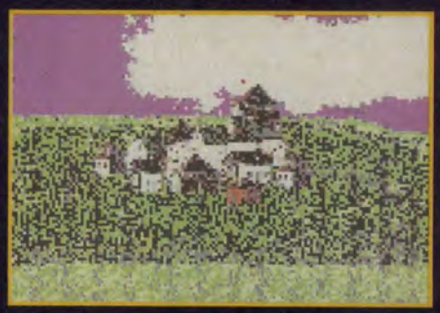
• When Frodo reaches Mount Doom, you'll have completed the War in Middle Earth.

■ The final evidence that she'd gone totally fruit loop was Vivien Westwood's summer collection. The horse seems quite happy with the look.



■ "That's a hell of a note to find stuck to your fridge," reflected Bilbo, as Frodo packed and left. Gandalf appeared from behind the tree, sniggering.

■ The villagers still remember the day the country was mysteriously ionised.



■ Honestly - will you look at the state of that lawn? Some people just don't care.

FRONTIER GAMETEK

Last month, Gamebusters punched Frontier to the ground. This month, we're going to stomp on its face. It's a damned good game, and getting the basic tips and cheats out of the way is a Good Thing. Besides, you'd like to see more of it, wouldn't you? This month's tips come from Tony Sheridan and the Most Dangerous Baron Peter.

• If you're someone who goes in for combat or likes the odd dangerous assignment, don't use a ship weighing over 480 tons. The larger ships have no acceleration, and can't move fast enough to help the military.

• It's better to have a ship with 12 shields than to use a few shields in combination with an auto-repair system. The system weighs 40 tons, equivalent to ten shields.

• The passenger-cabin cheat is not possible on the ST version of the game, but there are some tricks with the time control icons. When you launch a missile at someone, the odds are they'll turn and run for it. Normally, they'll manage to avoid the missile until it runs out of fuel, so before this happens hit the third time-accelerator button. The missile will now hit the ship. If you're close to a planet's surface the ship may hit the ground before the missile gets to it, in which case you're not credited for the kill.

• If you see someone's name on a bulletin board more than twice, you can trust them to buy your illegal cargo.

• If you're tired of wrapping your ship around a space station door and you can see your autopilot taking you in at a bad angle, just hit the time-accelerator button and you'll dock immediately.

• Dealing in robots and computers between Sol and Barnard's Star is a Good Thing. If you want to increase your combat rating, try the same run between Sol and Lalande 21185 instead. Make sure you're well armed, though.

■ Commander Jameson demonstrated his flying blindfolded trick, his nasal battle wound stopping him from noticing his sidekick Derek's fear.

MONKEY ANTICS

We've had a lot of letters in *STF* concerning the bug in *The Secret of Monkey Island*, and Gaius Longcroft-Wheaton has come up with an answer that doesn't involve copying the game on to eight single-sided disks.

It's a disk-swapping bug, you see, as the game crashes on some machines during some disk swaps. Gaius' solution is simple – when the game asks you for a disk, insert a different one of the four and wait to be asked again for the correct disk. If you now insert the disk you need, you shouldn't have any more problems on that swap.

• Always pay all your outstanding fines prior to docking, simply by broadcasting ahead. Otherwise you may be destroyed before you can hand over the cash personally.

• The best police bribe to go for is 250 credits. Any higher and you might well find that you're wasting your cash.

• Don't buy an escape capsule, just save your game more regularly. (Is this guy tight or what?)

• If you're attempting an assassination, the location and time given to you is always precise. In a matter of seconds your target could be completely out of range, so set yourself up at the position beforehand, and save the game. When you do attack the ship, do so on autopilot, and the ship will defend itself rather than hyperspace out of range.

• If you dock and find that the bulletin board has little on it, increase your Stardreamer Time Control to maximum. At the beginning of the next 24-hour period the information may change. ***stf***

■ Question: Has anyone actually managed to land a ship on a planet? Actually land in one piece? Thought not.

■ Wondering how these astounding 3D graphics are produced? Just turn to page 28 in this issue for 3DIY - your complete guide to adding depth.

CRASHING HORRIBLY

If you plough into the side of a planet, that's your concern entirely. If the game crashes, however, that's something else. The game will crash on two occasions:

1. You analysed your own arrival cloud with the hyperspace cloud analyser. Don't do it again.

2. You tried to sell a mining unit that had been deployed but hadn't taken any material in. Trying to sell a ship with such a mining unit will also result in a crash.

One final *Frontier* tip for goodies and big bucks is from Andy Cole. In fact, this has to be a world-beater for lots of goodies and big bucks. On finding yourself at Ross 154, you should look for Cemeiss, a planet to the bottom-left, and about two jumps away from your current position. This is a planet that will actually pay you to take away gemstones. You'll earn around 3,000 credits per ton, and still have a ton of gemstones to do with what you will. Clever, huh?

■ Excuse me - do you have a licence for that homing missile? What about that proximity mine or that megawatt pulse laser? Sir?

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BACK ISSUES

ISSUE 61

AUGUST 1994
Disk: *Well 'Ard, Twinz, Digit 1.1* demo and *Atari View 3.8*. **Inside:** serious software summer preview. Art packages – rated. Reviewed: *3D Calc, Kobold, Diamond Back 3, HP Chrome 2.5.*

ISSUE 60

JULY 1994
Disk: *Snackman, Deskpic, Sam 2 Disk, Diskfree, AutoRAM*, and *Music-Mon 2* demo.
Inside: Next generation of ST games. WPs – sorted! Reviewed; *Exposé, Vector Pro...*

ISSUE 59

JUNE 1994
Disk: *Mouse-Ka-Mania; Video Master; Morph.*
Inside: Video – how to edit and produce films; everything you need to know about DTP; *POV 2* reviewed; *Tempest 2000.*

ISSUE 58

MAY 1994
Disk: *Quartet; Cannon Fodder* demo
Inside: Piracy – your views; DIY monitor switcher; GDOS exposed; *AVP* previewed.

ISSUE 57

APRIL 1994
Disk: Demos of *UVK v6* and *Thought!*, plus *Tri Heli* and *Holocaust* **Inside:** direct to disk recording; *Chagall* and *Cannon Fodder* reviewed.

ISSUE 56

MARCH 1994
Disk: *F1* demo, children's colouring book; plus 5 utilities
Inside: Over 100 ST tips; image processing; *Cubase Audio* review; *Goal!* review; Jag pages.

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FEEDBACK

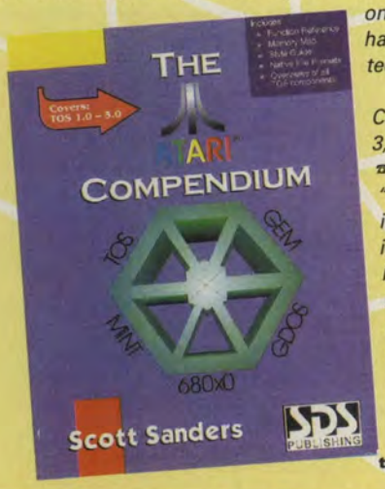
Who's that ugly swine? Oh, him. That's Trenton Webb and he's here to answer your letters in Feedback. That'll learn 'im!

Cookie monster

Dear Feedback
While reading old copies of the *FORMAT*, I found references to DONGLES and COOKIE JARS, neither of which are mentioned in Glossary (*STF* 54), although SYS.INFO (*STF* 53) shows my upgraded STFM does not have a Cookie Jar. I would be grateful if you could explain the meaning of these things, and advise me as to exactly what they do.
Yours faithfully,
LD Salter, Bristol

stf: *A dongle is simply a protection device. Generally they plug into a port the program doesn't use. The program will then check the port to see if the correct hardware is there and will only execute properly if it is. It's a more common on expensive serious packages but has occasionally been used to protect games as well.*

As for Cookie Jars, the Atari Compendium (ISBN 0-9638331-0-3, £39.95 available from HiSoft ☎ 0525 718181) defines them as: "A structure in memory containing certain entries called 'cookies' which are placed in the 'jar' by the operating system or Terminate and Stay Resident (TSR) applications. Applications can test for the presence of a cookie to determine the presence of a hardware device or system feature." There is no permanent Cookie Jar, which is why SYS.INFO failed to find one.



■ A fine tome, and one no ST tech fan can afford to be without.

■ Alleged backmasking got Judas Priest into all kinds of trouble in Nevada. Will the same thing happen with Jaguar *Dino Dudes*?

Dino-sty?

Dear *STF*
On the Jaguar Version of *Dino Dudes*, if you get to the witch doctor on level 26 (ish) he casts a spell and speaks gibberish. If you record the speech and play it backwards what he actually says is "buy another Jaguar cart" in a rather nice American drawl.
Mark Leejose, Newcastle

stf: *As odd as this may sound it is in fact true. We tried when the sample was being batted around the bulletin boards. Obviously the developers didn't watch that recent documentary on BBC2 about Judas Priest and their infamous 'backmasking' case in Nevada! They were innocent, the game isn't.*

PD WRITERS STRIKE BACK

No fair!

Dear *ST FORMAT*
I am writing to complain about your PD reviewer. The ratings he gave some titles were disgusting. He not only gave them low scores but actually insulted them. One title produced by us (Silly Software) was given a ridiculous 3%. The game was *Mobsters City* and was reviewed in *STF* 60. The comments made by the reviewer were offensive. He stated that the graphics were stolen and that the game was terrible and stupidly nasty. He also made insulting comments about the game's humour – talking about jokes aimed at busty woman and gays.

First off I would like to point out that the graphics are all 100% original, drawn by Tonesoft and NOT stolen. We challenge you to produce the similar graphics the review mentioned. Secondly, if the game is so bad then why do PD libraries stock it as licenceware? And why has the game reviewed top marks from other magazines? Floppyshop stock it as a Floppy Gold title which means they think it's of semi-commercial quality. Thirdly, none of the jokes are intended to offend, it's just silly-type humour. We're not insulting women and gays, only making light-hearted jokes about them.

Overall, 3% is for a game with bad gameplay and graphics, which keeps crashing, and not for a top quality game like *Mobsters City*. I'm sure the other people who got bad reviews are also disgusted at the reviewer and agree that action should be taken as we find this deeply offensive and insulting and I'm sure the other authors who got bad reviews feel the same.
Deano, Silly Software, Rochdale

■ The word 'stolen' was wrong, what we really meant was 'inspired by'. This is the title screen of *Mobsters City*...

■ ...and this is a scene from the 1981 Book Club Edition *101 Dalmatians* (ISBN 0-394-85955-8). Kind of similar huh?

Classified information

Dear *STF*
How about starting a Private Ad section (not necessarily free). I'm sure most *STF* readers have redundant software and hardware that they would like to sell to help finance their ST habit.
J Archer, Derby

stf: *Your idea is neat, especially as we are exploring the potential of second-hand ST's this very month (see page 34). If you'd be interested in such a service, drop me a line saying what you'd like to sell, the price, your name, address and phone number. If there's enough interest then expect to see a small ads section here very soon.*

Super Nova?

Dear Editor,
If this letter arrives before your deadline, I would be very appreciative if you could mention, in your news section, the following announcement:

"The deadline for submissions for *Nova 2* is 15 July..."
James Bird, Derby

stf: *Erm, well it didn't. In fact said sci-fi disk magazine is now available. Sorry about that. If anyone would like a copy of Nova 2 then all they have to do is send £1 and a self-addressed envelope to Nova 2, c/o James Bird, 91 Elm Tree Avenue, Kilburn, Bleper, Derby, DE56 0NN. And if there's something you'd like to contribute to a future Nova disk-mag, then send your submission to Nova Disk Magazine at the above address.*

Undiscovered country

Dear Feedback,
Could you help me with *Klingon War* from the subscriber's disk? It's a superb game but I seem to have to hit Klingons literally hundreds of times. Am I not targeting correctly? I click on the number of the ship I wish to hit – what else can I do? I'm an avid Trekkie, help!
Chris Brown, Harrow

stf *No, you're targeting correctly. These Klingons are tough old birds though and you do have to shoot them hundreds of times to kill them – so keep blasting!*

■ A screen from the rather splendid *Klingon War*. War may be hell, but why do you have to shoot the Klingons sooo much?

■ Another *Star Trek* pic. Clive will be pleased - that makes six this issue now. Can you find them?

Back to the music/

Dear Sir/Madam
As a recent convert to STs (for the purpose of music making), I wonder if you can help me. I intend to use the ST with a keyboard, and believe that the Replay 16 is what I need. However, you had a cover-mounted demo of the *Stereo Master* 8-bit stereo sampler on a back issue, but your back issues in the recent magazine only go back to issue 46. Is it possible to get hold of the *Stereo Master* demo?
Yours sincerely,
A Basire, Walthamstow

stf: *It was on a back issue of ST FORMAT, number 31 to be precise, but that particular volume has unfortunately sold out. For future reference, at the time of going to print we still have a few (and in some cases it is definitely a few) copies of ST FORMAT 19 – 28, 32, 35 – 38 and 40 – 60 still*

stf: ***Firstly let me apologise for the use of the word 'stolen'. Its usage was ill-advised and inaccurate. The reviewer's intention was to highlight similarities between some classic cartoon characters (see the pictures on the left for an example) and those in the game. In this instant even 'copied' would have been a little strong, and 'inspired by' may have been a better phrase.***

As for the objection to the humour, this is purely a matter of personal taste. The humour fell strongly into the Carry On camp – a form which people either adore or abhor.

Since taking the helm of STF, though, I do agree that our PD reviews have been too aggressive. A more philanthropic line – where effort, imagination and talent are remarked upon as well as the finished result – will be adhered to. The lower cost of PD means that it cannot be judged by the same standards as commercial software. The ST deserves a healthy PD sector and overly harsh reviewing will only discourage people from putting the necessary time and effort into creating programs for it.

Demo-lition men?

To The Editor
Firstly a point about demo reviews. You seem to hate demos and only give good reviews to the odd demo. Being a demo coder myself I know how difficult it is to write a mega demo. What you can't seem to appreciate is the fact that they take months, even years, to produce. So instead of saying how crap a demo is why not suggest some ideas to us, which would make a good demo?

Secondly the *Mobsters City* review. What the hell is that all about? I think it's brilliant. It's not puerile, it's just funny. The only reason you say it's puerile is because you are all boring sad people who have no life, so you spoil other people's by slagging off their games. You also said that the graphics were ripped off. The graphics are original and were drawn specially for the game. The artist has stopped reading your mag and I don't blame him.
NEV of OS

stf: ***For my apology over the use of the word 'stolen' and a general statement concerning our PD review policy please see the previous reply. I would like to take this chance to explain our reviews stance. Our reviews try to be as objective as possible, but will inevitably still be personal opinions. Reviewers should present the evidence and then distil this into a coherent, logically argued conclusion. This will still naturally be subjective, but the manner by which it is reached should be obvious. The result should be that even if you read a bad (namely low-scoring) review you should still know if you want to see the program in question, because its functions, attributes and problems will have been laid out in a coherent manner in the review.***

As for your point about demos, I would like to take reiterate a request I posted last month. We here at ST FORMAT know what we like, and score programs accordingly, but it is feasible that we (and indeed many readers) do not fully appreciate the demo coder's art.

To which end we will be running a feature with demo writers in the near future, in which you get the chance to explain exactly what you do, and why. If you or any other demo writing groups wish to participate in this feature, please send me details of your team, the demos you've done and some examples of your work. It'll be your chance to put the record straight.

ANOTHER GAME

Dear Trenton
When I received my *Cheaters Digest* from PjH I started scanning the extensive list of tips. I was taken aback when I saw the end-of-game code for *Flashback*. Out of curiosity I phoned the man at PjH, where I was told that it *had* actually been written for the ST, but never released. I called US Gold (who released *Another World)* and the gentleman I spoke to was most helpful, but wasn't aware that an ST version had been written, so no, they weren't going to release it.

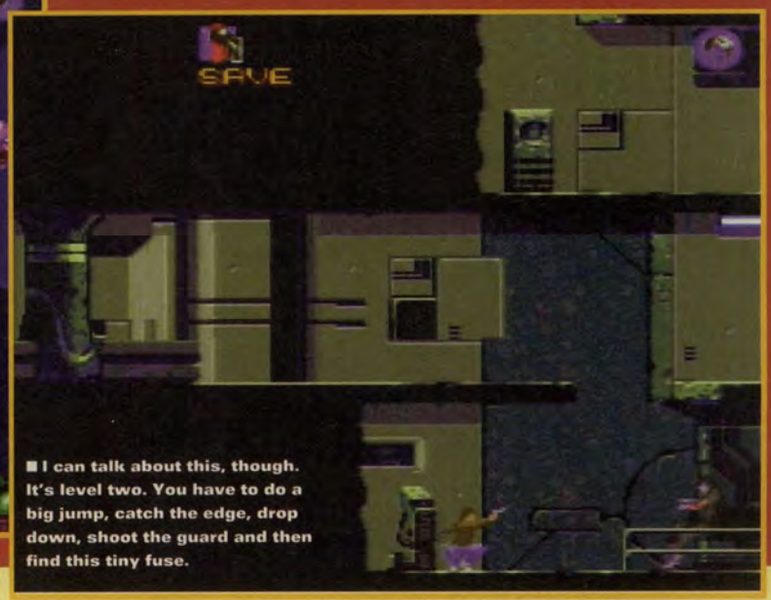
Would it be possible for *STF* to start a campaign to release *Flashback* on the ST? Even a limited edition would be a breakthrough. As long as I can get hold of a full copy, I'll be more than happy.

Douglas Sopp, a proud STE owner

stf: *I'm all for that – Flashback is a brilliant game. I saw it on the Super NES back when I ran Game Zone magazine and it was fabulous fun. It looked great, played well and I was hopeless at it. It's a long delay – the game was published ages ago on all the other formats – but it's worth a shot. If you want to see Flashback flash on to the ST (Oh dear – Jill), send a ranting letter, petition of names, or whatever to We Want Flashback, ST FORMAT, 30 Monmouth Street, Bath, Avon, BA1 2BW. We'll collate all the letters together and then hit both the publishers and programmers. It's a long shot, but it might just work. Power to the people!*

■ The absolutely splendid *Flashback* as seen on the SNES. Now this game has already been coded for the ST but no one a) knew about it, b) published it.

■ Now this is a really good bit, right near the end. Conrad (our hero) has to plant a... Ah, better stop there just in case the game does make it out on the ST.



■ I can talk about this, though. It's level two. You have to do a big jump, catch the edge, drop down, shoot the guard and then find this tiny fuse.

available. To make sure you're not disappointed give our Customer Services line a call on ☎ 0225 822510 and they'll sort you out.

Disk doubler

Dear *ST FORMAT*
I am writing to bounce an idea off you: why not put two disks regularly on the cover every month? One disk with your usual program and one with a classic game in full.
Yours faithfully,
Gary Gowton, County Durham

stf: *That's a great idea but unfortunately one that we currently couldn't employ. A couple of years ago the software trade body ELSPA (European Leisure Software Publishers Association) banned magazines from putting full commercial games on cover disks. The worry was that if there were too many complete games on the mags then nobody would bother buying full price commercial releases. Sorry, but them's the rules. Apparently.*

Sub-standard

Dear Sir
I feel that I must write about a very unfair situation you have created for loyal readers of your magazine. I don't subscribe to magazines because I got my fingers burned when one went broke and I lost out on 11 issues.

Now you are offering an extra disk of programs to subscribers. I have purchased your magazine since day one, and I have always got it from my local newsagent with no problems. So why should I lose out on this extra disk offer? I am retired and on a small pension, and as a result I just don't have the means to make a full year's subscription.

As a regular reader I feel that you should put a coupon in the mag which could validate that I have purchased the mag, and you could include a position on it for the newsagent's name and address.

Subscribers also get other offers which I have missed out on – very unfair don't you think? I know you make better interest on having the money up front, but I don't think subscribers alone would keep you going for very long. I'm happy with the mag or I wouldn't have supported it from the start.
Yours sincerely,
L D Holland, Bedford

stf: *I'm sorry that you have had an unfortunate experience with subscribing to another magazine. First, let me assure you that ST FORMAT is going to be around for many moons to come, and you can take out a subscription without fear. However, as regards the offer, I have to be a bit brutal here and say that the extra disk is part of the subs package and we are unable to supply it separately. The Wonderdisk (as it is called) was devised to encourage subscription and, as such, folk who subscribed on the strength of it would feel equally slighted if we were to start offering it as part of the regular STF bundle. As for your validation idea, though, it makes sense, and I'll look into it to see if a practical coupon solution can be worked out.*

BBS bulletin

The idea of installing a a key switch to an ST is a good one but your implementation [in *STF* 60] is potentially unsafe. Listed

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■ The complete list of bits to finish Clive's DIY project with style are supplied just there. No there on the right - that's it.

below are a few improvements that greatly improve the safety aspect.

The wires to the back of the key switch should be insulated with a rubber boot, preventing accidental contact. Twin-core double-insulated 3A mains cable should be used for the wiring.

The edge of the shielding, by which the cable passes, should be protected by a piece of PVC beading (glue the beading in place), preventing the insulation cable from being damaged.

Maplin part numbers:
Rubber insulating boot
HL5IF 58p
Twin-core mains cable
XR47B 20p
PVC Beading
XR78K 28p

One other point – what has happened to the *STF* BBS? For the last two weeks there has been no answer from your BBS. Has this service been discontinued? Has the number changed? Or is there some sinister reason? Looking forward to seeing a reply in the magazine.

Yours sincerely,
Mr A Hulse, Wigan

stf: *You are quite right, the old ST FORMAT BBS no longer exists. We needed the Mega ST on which it ran for reviewing purposes. Our machines take a bit of a bashing and one died, meaning that we needed an ST fast. The BBS ST was the nearest to hand. You can still contact us via the AdLib BBS ☎ 091 370 2659 (24 hour, 14,400 baud).*

As for the safety aspect of the Get Switched On feature, cheers for the extra hints. These (or similar) features were included by Clive, but due to pressures of page space we had to pare the feature down to the bare minimum. The resulting feature was still safe but, as you point out, not as elegant as it could have been.

■ The lovely, huggable Jaguar; the machine that could save Atari. No regular section in *STF* though. It's the space, you see, we just haven't got enough.

ST vs Jag

Dear *ST FORMAT*
Having recently picked up your magazine I was astonished to see that the Jaguar section had been scrapped, and that it had been spread into the ST games section.

The Jaguar is a different class of computer and is vital to the life of Atari. I think that the Jaguar deserves a section to itself – giving me something to flick to instead of having to find it every time I want to read it.

Yours sincerely,
Dr (and Mrs) L Jacobs, Peterborough

stf: *ST FORMAT is by definition an ST magazine, which is why the Jaguar coverage has recently been restricted. We know (from your replies to the survey) that a large number of you are thinking of getting a Jag, but you all aim to keep your STs too. Obviously the Jag's success or failure will determine the future of Atari and as such have a direct bearing on ST users. So when the Jaguar was unveiled we covered it in a big way – hence the special section. Now the machine's on sale in the UK we'll still review the pick of the games crop and keep you up to date with all the latest Jag gossip but not in any specific section. However when there's a choice between ST and Jag coverage, the ST will win every time.*

Elite Fodder

Dear *ST FORMAT*
I am starting up a *Frontier* User Group: The Panther Owners Group for general tips and saved game swapping between experienced users. The criteria for membership are simple: a Panther Mirage, Imperial Trader or Courier, Puma, Tiger or a Boa. They must also have an Elite rating of Above Average. If any reader wishes to join they must send two or more tips, an SAE and a saved game. I should be able to send the disk back within the month, full of saved games and tips from other users. The address is Panther Owners Group, 56 Whitely Crescent, Wigan, Lancs, WN1 2PP.
M Gray, Wigan

stf: *Outrageous! This proves just how popular Frontier is! Swapping saved game disks is a great idea – you get to enter someone else's universe and be dead nosy about how well they've played.*

A four page Feedback! Like wow, I need to go and lie down in a dark room with Clive's *Division Bell* CD. So if you fancy making me suffer some more sad Sixties hanger-on muzak, or perhaps have a point to make, or a question to ask, then send a letter to: Feedback, *ST FORMAT*, 30 Monmouth Street, Bath, Avon, BA1 2BW. As they say in the movies, "Let's Go!"

ST FORMAT'S GUIDE TO BUYING BY MAIL ORDER

The need for buying by mail order increases as high street shops with ST peripherals get scarcer. Heed our advice.

1. Before you send any money, ring the supplier to make sure the item you require is in stock. Ask questions about the company's policy on delivery and returns of faulty equipment. Make sure there are no hidden costs such as postage and packaging. Find out when you can realistically expect to receive your goods.

2. Make sure you always, always, always read the small print on adverts.

3. Beware of companies that do not include their address on their adverts. Also, avoid any companies that do not answer or return your calls.

4. By far the best method of payment is by credit card. If you're ordering goods which come to more than £100 in total value, remember that you are legally entitled to claim compensation from some credit companies if the retailer goes bust. Check your credit card company's policy. You can also try to get extra insurance in advance.

5. If you're not paying by credit card, pay by cheque. Never send cash, and avoid using postal orders.

6. Always keep a record, and keep it somewhere safe. If you are buying by credit card keep a note of the time of the order and ask for an order number. When ordering anything over the telephone, always double-check the price before you part with your money.

7. If you are sending a cheque keep a note of the cheque number, the date and the exact value. Make sure you know the name and some details of the mail order company.

8. When you receive your goods, check them carefully. If anything is missing or faulty, contact the supplier immediately.

9. Always order from the most recent issue of *ST FORMAT*.

10. If a problem does arise, contact the supplier in the first instance. Calmly and politely tell them your problem. Most problems turn out to be minor hitches or misunderstandings that can easily be resolved. If you think you have a genuine grievance, contact your local Trading Standards Officer. The number is in the phone book.

TWILIGHT ZONE

As another issue of *STF* sinks slowly into the printing presses, your favourite mag team desperately struggle with the problem of what to fill this last page with

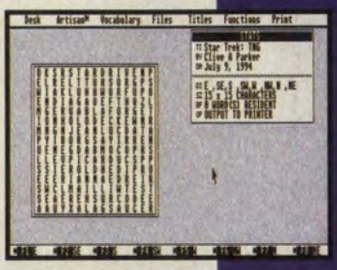
■ Look! You can even buy ST FORMAT in Malta, as our ex-Prod Ed Debs shows.

PIXEL PAINTING

This month's artistic contribution comes from Graham Cohill of Dunlin, who created most of this Judge Dredd image first in lines, then defocused using *Cyberpaint*. We decided on this particular picture for a variety of reasons, the main one being that the film's due out soon, and it's going to need all the coverage it can get. Thanks, Graham.

Last month's winner

Something went wrong in the *STF* office. Whichever Celtic force caused the *Wordquiz* bug also caused half of our wordsearch to get brutally chopped off. We do however have a winner, in the form of Mystic Meg of Grimsby, who beat the rush by managing to send in a completed puzzle shortly before we went to press, and wrote in recently to thank us for her prize.



■ *Wordsearch 4* won't work without a blitter.

Wordquiz 4

Those of you who're spending your free time sticking pins into effigies of the *STF* crew will be pleased to know that we've sorted out exactly what went wrong with *Wordquiz 4*, last month's Cover Disk puzzle utility, which totally refused to work on some people's machines. Unfortunately, we don't have a solution to the problem yet.

When you turn on your ST and land in standard Desktop mode, you'll notice an Options menu. This menu, if your machine has the facility, has an option to turn on the blitter chip. The status of the chip is signified by a tick appearing next to the option once selected. This chip, though appearing only in folklore in some cultures (and being quietly feared even then), actually handles large memory operations, which are essential to the running of *Wordquiz*.

However, not everyone has a blitter chip. In fact, judging by the number of irate readers we've spoken to recently, hardly anyone has a blitter chip. Some say that only eight blitter chips were sold in Britain. We have eight STs in our office and, strangely, *Wordquiz* works on every single one.

Apologies to anyone without a blitter chip, but it doesn't look as if there's a solution to this problem. Those of you who aren't happy about this will be pleased to hear that Clive's being beaten with a knotted rope as you read this. It wasn't actually his fault, but it's something to do of an afternoon.

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Cover Disk menu compo winner

There's a subtle addition to your Cover Disk this month. We've finally got a menu program, after throwing the programming challenge out in issue 57. We got, ooh, several entries, and even a winner.

Congratulations, then, to People's Friend Tony Porritt of Hartlepool, who wrote the program we'll be seeing an awful lot of from now on. Tony's program should be a godsend to those of you who have problems decompacting your software, especially on a single-disk drive. For his efforts, Tony will be the owner of a crisp, well-penned cheque for £50 "real soon now". And as far as we're concerned, the main advantage is that if anything goes wrong we'll print his address, so 4,000 of you can go round his house and duff him up.

ST FORMAT'S ESSENTIAL CONTACT NUMBERS

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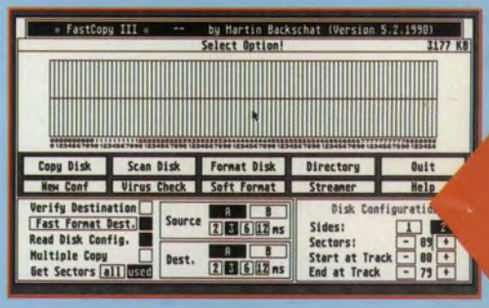

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